

Oracle® Rdb

Oracle SQL/Services and OCI
Services for Oracle Rdb Release
Notes

Release 7.3.2.1.0

November 2015

ORACLE®

Oracle SQL/Services and OCI Services for Oracle Rdb Release Notes, Release 7.3.2.1.0

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Preface

Purpose of This Manual

This manual contains release notes for Oracle SQL/Services and OCI Services for Oracle Rdb Release 7.3.2.1.0. The notes describe changed and enhanced features; upgrade and compatibility information; new and existing software problems and restrictions; and software and documentation corrections.

Oracle SQL/Services software is a client/server component of Oracle Rdb. Oracle SQL/Services lets you develop client application programs on a variety of desktop and mainframe systems so that you can access Oracle Rdb databases.

Intended Audience

These release notes are intended for all users of Oracle SQL/Services and OCI Services for Oracle Rdb and should be read to supplement information contained in the Oracle SQL/Services Installation Guide, the Oracle SQL/Services Server Configuration Guide, and the Guide to Using the Oracle SQL/Services Client API.

To get the most out of this manual, you should be familiar with Oracle SQL/Services and OCI Services for Oracle Rdb, data processing procedures, and basic database management concepts and terminology. Read this manual before you install, upgrade, or use Oracle SQL/Services and OCI Services for Oracle Rdb Release 7.3.2.1.0.

Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

Operating System Information

Information about the versions of the operating system and related software that are compatible with this version of Oracle SQL/Services and OCI Services for Oracle Rdb is included in the Oracle SQL/Services Installation Guide.

Document Structure

This manual consists of the following chapters:

- Chapter 1 describes the new and changed features of Oracle SQL/Services Release 7.3.2.1.0.
- Chapter 2 describes problems, restrictions, and workarounds known to exist in Oracle SQL/Services Release 7.3.2.1.0.
- Chapter 3 describes release notes that pertain to OCI Services for Oracle Rdb Release 7.3.2.1.0.
- Chapter 4 describes new features and problems fixed in previous releases.

Related Manuals

For more information on Oracle SQL/Services and OCI Services for Oracle Rdb, see the following manuals in this documentation set, especially the following:

- Oracle SQL/Services Installation Guide
- Oracle SQL/Services Server Configuration Guide
- Guide to Using the Oracle SQL/Services Client API

The Oracle SQL/Services and OCI Services for Oracle Rdb Release Notes are provided as part of the software kit. Adobe Portable Document Format (.pdf) files for the release notes are available in SYSSHELP.

The remaining manuals are provided with the kit and are also available with all the Oracle Rdb documentation on My Oracle Support and the Oracle Rdb OTN web site.

Conventions

In this manual, Oracle Rdb refers to Oracle Rdb for OpenVMS software.

HP OpenVMS Industry Standard 64 for Integrity Servers is often referred to as OpenVMS I64.

OpenVMS means both the OpenVMS Alpha and the OpenVMS I64 operating systems.

The SQL interface to Oracle Rdb is referred to as SQL. This interface is the Oracle Rdb implementation of the SQL standard adopted in 1999, in general referred to as the ANSI/ISO SQL standard or SQL:1999. See the Oracle Rdb Release Notes for additional information about this SQL standard.

Oracle ODBC Driver for Rdb software is referred to as the ODBC driver.

In examples, an implied carriage return occurs at the end of each line, unless otherwise noted. You must press the Return key at the end of a line of input.

Often in examples the prompts are not shown. Generally, they are shown where it is important to depict an interactive sequence exactly; otherwise, they are omitted in order to focus full attention on the statements or commands themselves.

The following conventions are also used in this manual:

[]	In text, brackets enclose optional information from which you can choose to use or not.
\$	The dollar sign represents the DIGITAL Command Language prompt in OpenVMS.
>	The right angle bracket represents the MS-DOS command prompt. This symbol indicates that the MS-DOS command language interpreter is ready for input.
boldface text	Boldface type in text indicates a term defined in the text.

Oracle SQL/Services: New and Changed Features

This chapter describes the new features and technical changes to Oracle SQL/Services in release 7.3.2.1.0. It also describes installation requirements in addition to those documented in the Oracle SQL/Services Installation Guide, obsolete routines, structures, and features, and provides a summary of additions and changes to the documentation. Refer to the Oracle SQL/Services Installation Guide for installation information. See Chapter 3, "OCI Services for Oracle Rdb: Release Notes", for descriptions of new and changed features for OCI Services for Oracle Rdb.

1.1 Documentation

Documentation for Oracle SQL/Services and OCI Services for Oracle Rdb is available in Adobe Acrobat (PDF) formats on My Oracle Support and OTN. Adobe Acrobat files ending with extension .PDF can be read with an Adobe Reader. Readers for many platforms are available without fee from the Adobe web site.

1.2 Summary of Oracle SQL/Services Server New and Changed Features for Release 7.3.2.1.0

The following sections describe new and changed features for Oracle SQL/Services server release 7.3.2.1.0.

1.2.1 Oracle Rdb Software Requirements

Oracle SQL/Services and OCI Services for Oracle Rdb release 7.3.2.1.0 requires Oracle Rdb release 7.2.5.0.0 or higher.

1.2.2 OpenVMS Software Requirements

Oracle SQL/Services release 7.3.2.1.0 requires OpenVMS Alpha Version 8.3 or higher, or OpenVMS I64 Version 8.3 or higher software.

1.2.3 Installing SQLSRV\$MODxx Images

Oracle SQL/Services and OCI Services for Oracle Rdb executes the following images, shipped as part of Oracle Rdb kits:

- SYS\$COMMON:[SYSLIB]SQLSRV\$MODnn.EXE
- SYS\$COMMON:[SYSLIB]SQLSRV\$MOD1PCnn.EXE

where nn is the Oracle Rdb SQL release associated with the image.

In order to improve the performance of and reduce the virtual address and physical memory space used by Oracle SQL/Services and OCI Services for Oracle Rdb, Oracle recommends installing any of these images that will be used by your applications.

For instance, if you have an Oracle SQL/Services service defined with the attribute "SQL version 7.3", add the following to SYS\$STARTUP:SQLSRV\$STARTUP73.COM to install the SQL 7.3 version of these files during Oracle SQL/Services startup.

```
$      install add sys$share:sqlsrv$mod73.exe      /share/open/header
$      install add sys$share:sqlsrv$mod1pc73.exe  /share/open/header
```

For SQL version 7.2, replace "73" with "72" in the file names. If you have applications using both SQL releases, Oracle recommends installing all 4 images.

1.2.4 SQLSRV_MANAGE SLEEP Command

Support has been added in Oracle SQL/Services release 7.3.2.1.0 for the SQLSRV_MANAGE SLEEP command. The syntax for the SLEEP command is the following.

```
SLEEP nn;
```

Where nn is the number of seconds to sleep

The SLEEP command suspends the execution of subsequent SQLSRV_MANAGE commands for the number of seconds specified. This command is useful in a SQLSRV_MANAGE command procedure. For instance, when a dispatcher is shutdown and then restarted, it can be used to ensure that the dispatcher has had time to complete the shutdown before it is restarted, as demonstrated by the following sequence of commands within a SQLSRV_MANAGE command procedure.

```
SHUTDOWN DISPATCHER OCI_DISP;
SLEEP 3;
START DISPATCHER OCI_DISP;
```

1.2.5 Logicals to Customize TCP/IP Keepalive Settings for SQLSRV Dispatchers

The TCP/IP keepalive settings for ports being used by dispatchers, using any network protocol other than OCI, can now be customized using system-wide Oracle SQL/Services logicals, with Oracle SQL/Services release 7.3.2.1.0. These logicals will override the TCP/IP system level settings.

The TCP/IP keepalive parameters that can be customized are TCP_KEEPINTVL, TCP_KEEPINIT, TCP_KEEPIDLE and TCP_KEEPCNT. These can be set using the following Oracle SQL/Services system-wide VMS logicals:

1. SQLSRV\$TCP_KEEPINTVL logical

The SQLSRV\$TCP_KEEPINTVL logical specifies the number of seconds to wait before retransmitting a keepalive probe to the remote system of a connection. Note that the value of this logical is expressed in seconds, not half-seconds.

2. SQLSRV\$TCP_KEEPINIT logical

The SQLSRV\$TCP_KEEPINIT logical specifies the number of seconds to wait before a TCP connection attempt times out. Note that the value of this logical is expressed in seconds, not half-seconds.

3. SQLSRV\$TCP_KEEPIDLE logical

The SQLSRV\$TCP_KEEPIDLE logical specifies the number of seconds to wait before TCP sends an initial keepalive probe to the remote system of a TCP connection. Note that the value of this logical is expressed in seconds, not half-seconds.

4. SQLSRV\$TCP_KEEPCNT logical

The SQLSRV\$TCP_KEEPCNT logical specifies the maximum number of keepalive probes that will be sent to the remote system of a connection that has been idle for a given period of time.

The previously undocumented Oracle SQL/Services logicals, SQLSRV\$TCP_PROBETIME and SQLSRV\$TCP_DROPTIME, are no longer supported, have been deprecated and are now superceded by the new logicals.

This enhancement is available in Oracle SQL/Services release 7.3.2.1.0.

1.3 Summary of Oracle SQL/Services Client API New and Changed Features for Release 7.3.2.1.0

The following sections describe new and changed features for Oracle SQL/Services client API release 7.3.2.1.0.

1.3.1 New API Clients Supported

Several new client platforms are now supported by the Oracle SQL/Services client API release 7.3.2.1.0.

The following list includes all supported API client platforms.

- Windows Vista, 7, 8, 8.1, 10, Server 2008, Vista X64, 7 X64, 8 X64, 8.1 X64, 10 X64, and Server 2008 X64
- HP-UX 64-bit
- Oracle Enterprise Linux and Red Hat Enterprise Linux, 32-bit, release 5.0 or later
- Oracle Enterprise Linux and Red Hat Enterprise Linux, 64-bit, release 6.4 or later
- openSUSE 12.1 or later, 32-bit and 64-bit

- SUSE Linux Enterprise 11 SP2 or later, 32-bit and 64-bit
- OpenVMS Alpha and OpenVMS I64

For installation on the Windows 8.1 and 10 platforms, see the installation guide provided in the Windows32 kit directory for details on installing this client kit.

For installation on the Windows 8.1 and 10 X64 platforms, see the installation guide provided in the Windows64 kit directory for details on installing this client kit.

There is a problem running the Oracle SQL/Services IVP on Windows 8.1, 10, 8.1 X64 and 10 X64, as seen below:

```
Enter the node name where the server resides: MYNODE
Enter the Network Transport [DECNET/TCPIP/NAMEPIPE]: TCPIP
Enter the username: SMITH
Enter the password: ***
Enter a list of service names to be tested, separated by comma [GENERIC]:
***** Connecting to GENERIC service *****
***** Oracle SQL/Services IVP Error *****
SQLCA: SQLCODE: -2012
SQLERRD[0]: 13 SQLERRD[2] 0
*** Oracle SQL/Services IVP failed when accessing the GENERIC service ***
```

For Oracle SQL/Services release 7.3.2.1.0, you can work around this problem by following these steps:

1. Right-click on the Oracle SQL/Services IVP shortcut and choose "Properties".
2. When the Properties dialog box appears, click the "Compatibility" tab.
3. Click the "Run this program as an administrator" box.
4. Click "OK" and then run the SQL/Services IVP.

1.3.2 API Clients Desupported

The following API clients have been desupported as of Oracle SQL/Services release 7.3.2.1.0.

- Windows XP, Server 2003, XP X64, and Server 2003 X64

Oracle SQL/Services: Known Problems

This chapter describes problems and restrictions relating to Oracle SQL/Services release 7.3.2.1.0.

2.1 Oracle SQL/Services Release 7.3.2.1.0 Server Known Problems and Restrictions

The following sections describe Oracle SQL/Services release 7.3.2.1.0 server restrictions and known problems.

2.1.1 SQL/Services Process Priority Settings

SQL/Services processes, including executors, dispatchers and the monitor, must all run at the same priority. Semaphores are used for communication between processes and VMS requires that processes communicating via semaphores must run at the same priority.

2.1.2 Support for OpenVMS VAX and Standard Kits

Oracle SQL/Services release 7.3.2.1.0 and OCI Services for Oracle Rdb release 7.3.2.1.0 are not supported on OpenVMS VAX.

Also, standard kit installation is not supported with this release. Only multiversion kits are available.

2.1.3 Concealed Attributes are Required for Rooted Directory Logicals

When Oracle SQL/Services starts a new monitor, dispatcher or executor process, it uses the SET DEFAULT DCL command to set the initial default disk and directory for the process. In addition, when a new client connects to a universal service with database authorization set to connect user, Oracle SQL/Services calls the SYS\$SETDDIR OpenVMS system service to set the default disk and directory for the executor process. To set default to a disk and directory combination that includes a rooted directory logical name, the OpenVMS operating system requires that the rooted directory logical name be defined with the CONCEALED attribute.

Consider a rooted directory logical name ALL_USERS used to reference user directories in the following example:

Root top-level user directory:	\$1\$DKA100:[USERS]
Specific user directory:	\$1\$DKA100:[USERS.FRED]

In this example, the ALL_USERS rooted directory logical name must be defined as follows (the /EXECUTIVE switch may also be used for greater security):

```
$ DEFINE/SYSTEM ALL_USERS $1$DKA100:[USERS.]/TRANSLATION_ATTRIBUTE=CONCEALED
```

The default disk and directory for user FRED can then be specified as follows:

```
ALL_USERS:[FRED]
```

If a rooted directory logical name is not defined with the CONCEALED attribute, then the SET DEFAULT DCL command executed during monitor or dispatcher process creation fails as follows if the monitor is started from an account that specifies the rooted directory logical name. Likewise, the SET DEFAULT DCL command executed during executor process creation will also fail in the same way if the service owner user name account specifies the rooted directory logical name.

```
$ DEFINE SYS$LOGIN ALL_USERS:[FRED]  
$ SET DEFAULT SYS$LOGIN  
%DCL-W-DIRECT, invalid directory syntax - check brackets and other delimiters
```

In addition, if a rooted directory logical name specified for a client account is not defined with the CONCEALED attribute, then an executor process will bugcheck and exit with the following error message in the executor log if the user connects to a universal service with database authorization set to connect user:

```
-----EVENT BEGIN: EVENT_LOG at Wed Sep 24 1997 14:05:33.914-----  
%SQLSRV-I-EVENT_LOG, event logged at line 1636 in file DBS_PROT_VMS.C;1  
Error setting VMS process user name  
%RMS-F-DIR, error in directory name  
-----EVENT END : EVENT_LOG at Wed Sep 24 1997 14:05:33.930-----
```

See the *Guide to OpenVMS File Applications* in the OpenVMS documentation set for more information on how to define and use rooted directory logical names.

2.1.4 Do Not Kill Oracle SQL/Services Processes

Under certain circumstances, the entire Oracle SQL/Services server shuts down if an Oracle SQL/Services dispatcher or executor is abnormally terminated. You should never use the DCL STOP/ID command on OpenVMS systems to stop an Oracle SQL/Services dispatcher or executor process. The Oracle SQL/Services system management command SHUTDOWN DISPATCHER or SHUTDOWN SERVICE should be used to stop dispatchers and executors. If an executor does not terminate after issuing the SHUTDOWN SERVICE command, or if you do not want to shut down the entire service, the Oracle SQL/Services system management command, KILL EXECUTOR, should be used instead.

Note that the RMU CLOSE command can have the same effect as the STOP/ID or kill command by terminating Oracle SQL/Services executors attached to the database being closed. Before using the RMU CLOSE command, ensure that no Oracle SQL/Services executors currently have the database open. Any executors you find that do have the database open should be terminated with either the Oracle SQL/Services system management command SHUTDOWN SERVICE or the KILL EXECUTOR command.

2.1.5 Do Not Shut Down or Restart the SQLSRV_MANAGE System Management Service

If you shut down or restart the SQLSRV_MANAGE system management service using the SQLSRV_MANAGE utility, then subsequent attempts to connect to the server are rejected and you render the server unmanageable. If you do accidentally shut down or restart the SQLSRV_MANAGE service, then you must find and kill the Oracle SQL/Services monitor process, then restart the server.

2.1.6 Management Utilities Allow Multiple Dispatchers With the Same Port IDs

Oracle SQL/Services allows you to define multiple dispatchers, each listening on different network ports. Currently, SQLSRV_MANAGE does not ensure that multiple dispatchers do not use the same port numbers or names. If multiple dispatchers are defined to use the same ports, the second dispatcher to be started fails.

2.1.7 Database Service Attached to Remote Database Does Not Know If Database is Closed

It is possible for Oracle SQL/Services database services to be preattached to a remote database. For example, the payroll service defined below attaches to the database "payroll" on node "REMOTE".

```
create service payroll autostart on
    reuse session
    sql version 7.2
    attach 'filename REMOTE:::payroll'
    owner 'payrollacct'
    database authorization service owner
    min_executors 5
    max_executors 5;
```

If the payroll database on node REMOTE is closed, the Oracle SQL/Services payroll service has no way of knowing that the database has been closed. The payroll service continues to run, even though it is no longer attached to the database. The service is useless and must be shut down and restarted after the database is reopened. Any clients attached to the service while it is in this state get a SQLCODE of 1 with the following errors when they attempt to access the database:

```
%RDB-F-IO_ERROR, input or output error
-SYSTEM-F-LINKABORT, network partner aborted logical link
```

All Oracle SQL/Services services that are preattached to a remote database should be shut down before the database is closed. If this is not possible, there is a workaround for database services. Rather than defining session reusable database services, you can define a transaction reusable database service with CLIENTS_PER_EXECUTOR set to 1.

```

create service payroll autostart on
  reuse transaction
  sql version 7.2
  attach 'filename REMOTE:::payroll'
  owner 'payrollacct'
  database authorization service owner
  min_executors 5
  max_executors 5
  clients_per_executor 1;

```

The service definition previously shown gives you essentially the same behavior as the previous session reusable database service. However, Oracle SQL/Services executes a "get diagnostics ? = transaction_active" statement to detect the end of a transaction for transaction reusable services. Because this requires a call to the Oracle Rdb engine, it fails and Oracle SQL/Services bugchecks and shuts down the executor. If this brings the executor count below the MIN_EXECUTORS value defined for the service, the Oracle SQL/Services monitor attempts to create a new executor process. If the monitor fails to start a new executor process after two attempts, it shuts down the service. Note that this workaround generates executor bugcheck dumps that need to be cleaned up.

2.1.8 Process Startup Fails Due to Errors in Systemwide OpenVMS Login Procedure

All processes in the Oracle SQL/Services server environment on OpenVMS are created running the SYS\$SYSTEM:loginout image with a process-specific command procedure as SYS\$INPUT. Because the loginout image is used to create the process, the systemwide login procedure will be executed by the loginout image during process creation. If this procedure fails for some reason, then the Oracle SQL/Services process will fail to start. By default, any DCL command or image that completes with a failure status with a severity level of error or fatal can cause the procedure to fail unless it is handled using the DCL ON or SET NOON commands.

All Oracle SQL/Services processes start by executing the following DCL commands during process creation:

```

$ DELETE/SYMBOL/ALL
$ VRFY_SAVE = F$VERIFY(1)
$ DELETE disk:[directory]SQS_node_component.COM;
$ DEFINE SQS$DBSERVER TRUE
$ DEFINE SYS$LOGIN "disk:[directory]"
$ SET DEFAULT SYS$LOGIN
$ DEFINE SYS$SCRATCH "disk:[directory]"

```

If an Oracle SQL/Services process fails before executing these commands, please review the systemwide login procedure to determine the reason for the failure.

2.1.9 Implicit Attach Using the SQL\$DATABASE Logical Name Not Supported

Oracle SQL/Services does not support the use of the SQL\$DATABASE logical name on OpenVMS to implicitly attach to a database. For example, if you define the SQL\$DATABASE logical name, a client application must still issue an explicit SQL ATTACH statement. For example, use ATTACH 'FILENAME SQL\$DATABASE', to attach to the database. If a client application connected to a universal service issues a DML statement before attaching to a database, then the

executor will return a status code of -1, with an associated "%SQL-F-NODEFDB, There is no default database" error message.

2.1.10 Problems That Exist for NO_SERVICE and SVCNOTRUN Error Returns

Clients may see the NO_SERVICE error returned when the service exists, but has not been started.

Clients may see the SVCNOTRUN (service not running) error when, in fact, the service does not even exist.

2.1.11 Some Error Messages Are Missing Object Names

Some error messages from SQLSRV_MANAGE are intended to display the object name that is the source of the error. However, the name is lost and no name is displayed.

2.2 Oracle SQL/Services Release 7.3.2.1.0 Client Known Problems and Restrictions

The following information describes Oracle SQL/Services release 7.3.2.1.0 client known problems and restrictions.

2.2.1 Problem Using Statement With No Parameter Markers in Batched Execution

If an application executes a prepared statement using the SQLSRV_EXE_BATCH flag, but the statement does not contain any parameter markers, the statement is incorrectly executed as if the SQLSRV_EXE_W_DATA flag had been specified. That is, the Oracle SQL/Services client API immediately sends an execute request message to the server to execute the statement. At this point, subsequent calls to any API routine, including sqlsrv_execute_in_out and sqlsrv_execute, all fail with SQLSRV_INTERR (-2011) or SQLSRV_MULTI_ACT (-2016) errors. Once the client API has entered this error state, only the sqlsrv_abort routine functions correctly. Therefore, client applications must not execute SQL statements that do not contain parameter markers using batched execution.

2.2.2 Incorrect Error Message is Returned if a Client Cancels Batched Execution

If an application calls sqlsrv_execute_in_out or sqlsrv_execute with the execute flag set to SQLSRV_EXE_WO_DATA before calling SQLSRV_EXECUTE_IN_OUT or SQLSRV_EXECUTE with the execute flag set to SQLSRV_EXE_BATCH, the client API incorrectly sends an execute request message to the server with no statement ID. Upon receipt of this message, the server returns an SQLSRV_INVSTMID (-2008) error back to the client with the following error message:

```
%SQLSRV-F-INVSTMID, Invalid statement id: 0
```

In this situation, the SQLSRV_INVSTMID error may be ignored.

OCI Services for Oracle Rdb: Release Notes

This chapter highlights release notes that pertain to OCI Services for Oracle Rdb (formerly known as SQL*Net for Rdb) for release 7.3.2.1.0. It contains information about installation, new and changed features, known problems, software fixes, and documentation changes.

3.1 Software Requirements

OCI Services for Oracle Rdb release 7.3.2.1.0 requires OpenVMS Alpha Version 8.3 or higher, or OpenVMS I64 Version 8.3 or higher software.

3.2 Installing OCI Services for Oracle Rdb

The installation for OCI Services for Oracle Rdb is part of the installation for Oracle SQL/Services release 7.3.2.1.0. Refer to the following documentation for information on installing OCI Services for Oracle Rdb.

- SYSSHELP:SQLSRV073_INSTALL_GUIDE.PDF

This document is the Oracle SQL/Services Installation Guide. The information required to install OCI Services for Oracle Rdb is in this guide.

- Oracle SQL/Services Server Configuration Guide

The information required to configure OCI Services for Oracle Rdb can be found in this guide, which can be found on MyOracleSupport and the OTN web site.

3.2.1 Problem Reporting

If an error occurs while you are using OCI Services for Oracle Rdb and you believe that the error is caused by a problem with this Oracle product, contact your Oracle support representative for assistance.

When you experience a reproducible problem, it is important to provide as much detailed information as possible. Use the ALTER SESSION LOG FULL, HEADER [,TIMESTAMP] statement or define SQLNET_DEBUG_FLAGS "HTF" to collect detailed information about the current OCI Services for Oracle Rdb session. By providing the logged information with your problem report, you supply important data that can help solve the problem. See the Oracle SQL/Services Server Configuration Guide for more information about using the ALTER SESSION LOG statement and defining the SQLNET_DEBUG_FLAGS logical.

3.3 OCI Services for Oracle Rdb Problems Fixed for Release

7.3.2.1.0

This section highlights software errors relating to OCI Services for Oracle Rdb release 7.3.2.1.0 that have been fixed.

3.3.1 ALTER SESSION GLOBAL_NAMES=TRUE Clause Got ORA-03001 Error

Bug 20975753

In releases prior to 7.3.2.1.0, if an ALTER SESSION statement was executed with the GLOBAL_NAMES=TRUE clause using Oracle Server 11.2.0.4, OCI Services for Oracle Rdb issued an ORA-03001 error. This error indicates that the clause is not supported.

Starting with release 7.3.2.1.0, OCI Services for Oracle Rdb will simply ignore the GLOBAL_NAMES clause in the ALTER SESSION statement and no longer issue an error.

3.3.2 Long Raw Data Was Truncated at 32760 Bytes With Oracle JDBC 10g

Bug 20805254

When retrieving LIST OF BYTE VARYING (long raw) data from an Oracle Rdb database using Oracle JDBC release 10g or later and an OCI Services for Oracle Rdb release prior to 7.3.2.1.0, the retrieved data was truncated to 32760 bytes.

This problem has been corrected in OCI Services for Oracle Rdb release 7.3.2.1.0.

3.3.3 Cannot Use Rownum with Variable on an OCI Connection

Bug 13518768

In releases of OCI Services for Oracle Rdb prior to 7.3.2.1.0, the statement:

```
SELECT * FROM <table> WHERE ROWNUM <= :rowx
```

would fail with:

ORA-03115, unsupported network datatype or representation

This was caused by the query being rewritten by Rdb so that it included two variables named :rowx. OCI Services for Oracle Rdb did not recognise that they were the same variable and only one parameter was required. OCI Services will now recognise that the two variable references name the same variable and only one parameter is received. This change should have no effect when Rdb fully implements support for rownum.

This problem is fixed in OCI Services for Oracle Rdb release 7.3.2.1.0.

3.3.4 Rdb Natconn DROP No Longer Works with Users Attached

Bug 20494042

When preparing, upgrading, or dropping the Oracle metadata needed for OCI Services for Oracle Rdb, the attach to the database is made with restricted access. If the attach fails, the RDB\$NATCONN_DIC73 program will pause for a defined number of seconds for a defined number of times. There are two logicals that can define the length of the pause and the number of times to retry. SQLNET_DIC_RETRY_COUNT and SQLNET_DIC_RETRY_PAUSE can be used to define how many times the program tries to attach with restricted access and how long to wait between tries.

For users who cannot require users to detach from the database to allow restricted access, the following support has been added in OCI Services for Oracle Rdb release 7.3.2.1.0. If the logicals SQLNET_DIC_RETRY_COUNT and SQLNET_DIC_RETRY_PAUSE are both set to 0, the attach to the database will be done without restricted access and the prepare, upgrade, or drop will proceed with other users possibly attached. This may cause lock conflicts, decreased performance, or other failures, and it is not recommended, but is allowed for those environments where users may always be attached.

This change has been made in OCI Services for Oracle Rdb release 7.3.2.1.0.

3.3.5 Wrong Column Name in DBA_MVIEWS

Bug 19712575

In releases prior to OCI Services for Oracle Rdb release 7.3.2.1.0, a column in the view DBA_MVIEWS, created when preparing a database to use OCI Services, was erroneously named. The column was named MASTER_ROLLBACK_SEQ, but it should have been MASTER_ROLLBACK_SEG. The column will be named correctly in OCI Services for Oracle Rdb release 7.3.2.1.0 and will be renamed when upgrading to the current version.

3.3.6 Update ... Returning Column into Variable Returns Nothing

Bug 20578230

With OCI Services for Oracle Rdb release 7.3.2.1.0, a SQL UPDATE statement including a RETURNING clause will now return the correct value into the specified variable, EXCEPT in the case where the variable is used as both an input and an output parameter. In that case, the value will NOT be returned into the variable and no error will be returned. Errors can be seen in the executor log, but are not visible to the client application.

The following are examples of statements that work correctly.

```
UPDATE tab1 SET last_name = 'Smith' WHERE id = 1000 RETURNING first_name INTO :fn;
UPDATE tab1 SET first_name = 'John' WHERE last_name = 'Smith' RETURNING id INTO :ii;
```

The following are examples of statements that do not return the correct values.

```
UPDATE tab1 SET id = :id WHERE last_name = 'Smith' RETURNING id INTO :id;
UPDATE tab1 SET first_name = :nm WHERE last_name = 'Smith' RETURNING last_name INTO :nm;
```

This problem has been fixed in OCI Services for Oracle Rdb release 7.3.2.1.0.

3.3.7 OCI Upgrade in Database From 7.3.1.1.0 to 7.3.2.0.0 Fails

Bug 17821961

After upgrading OCI Services for Oracle Rdb from releases 7.3.1.1.0 to 7.3.2.0.0, an attempt to upgrade the OCI metadata would result in the following error.

```
$ @SYS$LIBRARY:RDB_NATCONN73
Operation (prepare/upgrade/drop/add_user/modify_user/remove_user/show_users):
upgrade
Database: mf_personnel
**** Upgrading database MF_PERSONNEL from version 73110 ****
ERROR: 222c8ac, %SQL-F-MODALREXI, module ORA_CONVERT already exists in the schema
or database for SQL statement create module ORA_CONVERT
**** Upgrading database FAILED ****
```

A dictionary upgrade of the OCI metadata is not necessary when upgrading OCI Services for Oracle Rdb from releases 7.3.1.1.0 to 7.3.2.0.0.

This problem is fixed in OCI Services for Oracle Rdb release 7.3.2.1.0.

3.3.8 TIMESTAMP Losing Milliseconds If Inserted Through OCI Services

Bug 19444184

With OCI Services for Oracle Rdb releases prior to 7.3.2.1.0, if a Java program used the Oracle JDBC driver and OCI Services to connect to an Oracle Rdb database, there was an issue with timestamps. If an UPDATE statement used parameter markers, the fractions of a second were truncated and lost. This did not happen, if no parameter markers were used.

For example, the following code led to lost fractions of a second.

```
ps = con.prepareStatement(
    "update start_date set date_date = ?, timestamp_date = ?");
ps.setTimestamp(1, ts);
ps.setTimestamp(2, ts);
boolean rs = ps.execute();
```

But the following code did not lose the fractions of a second.

```
ps = con.prepareStatement(
    "update start_date set date_date = timestamp'" + ts + "'", timestamp_date = timestamp'" + ts + "'";
boolean rs = ps.execute();
```

This problem has been fixed in OCI Services for Oracle Rdb release 7.3.2.1.0. The fractional second information will no longer be truncated.

3.3.9 SYSTEM-F-ACCVIO Error With ALTER SESSION SET SQLNET_BLOB_DATA_TYPE ON

Bug 19366932

In releases prior to OCI Services for Oracle Rdb release 7.3.2.1.0, turning on SQLNET_BLOB_DATA_TYPE or SQLNET_BLOB, via the ALTER SESSION command or with the use of the logical name, resulted in an access violation for the SQL*Plus SELECT statement.

For example:

```
SQL> ALTER SESSION SET SQLNET_BLOB_DATA_TYPE ON;
Session altered.

SQL> select x_column from y_table;
ERROR:
ORA-03113: end-of-file on communication channel

%SYSTEM-F-ACCVIO, access violation, reason mask=00, virtual
address=0000000000000020, PC=00000000174BB60, PS=0000001B
%TRACE-F-TRACEBACK, symbolic stack dump follows
image      module      routine      line      rel PC      abs PC
SQLSRV_SQLNETSHR73  lxoCnvca  lxoCnvCase
```

This problem has been fixed in OCI Services for Oracle Rdb release 7.3.2.1.0.

3.3.10 ADD_USER Fails With "Unable to change OpenVMS password" Message

Bug 18423713

In releases prior to OCI Services for Oracle Rdb release 7.3.2.1.0, the RDBNATCONN73 command procedure's ADD_USER command sometimes failed with an "Unable to change OpenVMS password" message, which did not give sufficient information to diagnose the root of the problem.

For instance,

```
$ @sys$library:rdb_natconn73
Operation (prepare/upgrade/drop/add_user/modify_user/remove_user/show_users):
add_user
Username [TESTUSER]:
User name [TESTUSER] is used.
New password:
Password Verification:
Database: testdb
%ADDED, user TESTUSER added to TESTDB
%ADD, Unable to change OpenVMS password for TESTUSER
%ROLLBACK-DB, rollback all changes made to databases
```

This message can occur for many different reasons. For instance, it will occur when the SYSUAF PRCLM and the SYSGEN PQL_MPRCLM parameters are both set to 0. It is difficult to diagnose the problem without more information about the cause of the problem.

Beginning with OCI Services for Oracle Rdb release 7.3.2.1.0, if a LIB\$SPAWN command fails, or if the spawned process fails, the procedure will output the error message returned, which should help determine the exact cause of the failure.

3.4 Known Problems and Restrictions

This section highlights problems and restrictions relating to OCI Services for Oracle Rdb and includes workarounds where appropriate.

3.4.1 Support for OpenVMS VAX and Standard Kits

Oracle SQL/Services release 7.3.2.1.0 and OCI Services for Oracle Rdb release 7.3.2.1.0 are not supported on OpenVMS VAX.

Standard kit installation is not supported with this version. Only multiversion kits are available.

3.4.2 Character Sets

The Oracle US7ASCII and DEC_MCS character sets are supported by default. See the Oracle SQL/Services Server Configuration Guide for information about using other character sets.

3.4.3 Dates

Oracle dates can pre-date the OpenVMS 17-NOV-1858 date. Such dates are not supported by Oracle Rdb or OCI Services for Oracle Rdb.

3.4.4 Transaction Reusable Services

Oracle SQL/Services transaction reusable services are not supported. Only session reusable services are supported.

3.4.5 Database Access by Service Owner

Oracle SQL/Services services with database access by service owners are not supported. Only services with database access by connect user are supported.

3.4.6 Grant Use on OCI Services

Grant use on OCI services is not supported. All users have access to OCI services. However, the database is still protected because access to the database must be through connect (client) username.

3.4.7 Multischema Databases

OCI Services for Oracle Rdb does not support multischema Oracle Rdb databases. However, OCI Services for Oracle Rdb adds an emulation layer that provides a multischema environment that is similar to what you get with Oracle.

3.4.8 Error Mapping is Not Exact

The Oracle error codes do not always map well to Oracle Rdb message vectors. As a result, OCI Services for Oracle Rdb might issue error code 32800. Error code 32800 is a generic server error code that does not convey any information about the error. The text accompanying the message provides more information about handling this error.

3.4.9 SQL Dialect

OCI Services for Oracle Rdb sets the Oracle Level1 or Oracle Level2 dialect and requires the dialect to perform its tasks. Changing the dialect may result in unexpected OCI Services for Oracle Rdb failures.

3.4.10 Multisession Server is Not Supported

The Oracle server can support multiple sessions from multiple client applications in one server process. OCI Services for Oracle Rdb cannot because of the locking differences between the two database products.

3.4.11 Cursors

The maximum number of open cursors is currently 998.

3.4.12 ROWID Support

ROWID support exists only if there are less than 2.1 billion pages in a logical area. Logical areas greater than 2.1 billion pages are not likely to occur unless you implement VLDB with a single-file database.

3.4.13 Piecewise Inserts

Piecewise inserts (specific to Oracle SQL) are not supported in this release.

3.4.14 RAW and VARCHAR Data

Oracle Rdb does not differentiate between RAW (binary) and VARCHAR (text) data. If you use the VARCHAR data type in place of the RAW data type, your application works with one exception. OCI Services for Oracle Rdb does not convert the binary data to text data if you select the data using the VARCHAR2 data type. You must explicitly convert the data using the HEXTORAW or RAWTOHEX SQL function. Explicitly converting the data works with both Oracle Rdb and Oracle RDBMS.

3.4.15 Determining a NOT NULL Constraint Through a Describe Call

If the statement `SELECT col1 FROM tab1` were parsed and described in OCI, the Oracle server returns a message that `col1` either does or does not have a NOT NULL constraint. OCI Services for Oracle Rdb does not return this information in the describe call. You can, however, obtain this information from the metadata tables. This restriction causes applications like SQL*Plus to always describe a column as not having a NOT NULL constraint when it in fact may have a NOT NULL constraint.

3.4.16 OCI Error When Attempting to Fetch a Binary ROWID

The OCI FETCH routine returns the ORA-03106 error when you attempt to fetch a binary ROWID (data type DTYRID).

To work around this problem, fetch a ROWID in text.

3.4.17 SYSDATE Function is Available From a Dblink Connection

The SYSDATE function is available from a dblink connection. When used in this way, SYSDATE is evaluated by the Oracle Rdb Server, which is not standard Oracle semantics. Please be aware of this difference and certain that you want to use SYSDATE in this way.

3.4.18 Storing and Retrieving Long Raw Data Using Thin JDBC Driver

There are several restrictions using the thin JDBC driver to store and retrieve long raw (image) data with OCI Services for Oracle Rdb:

- Image data must be defined as `BinaryStream` data and should be stored using `setBinaryStream` and retrieved using `getBinaryStream`.
- For the thin JDBC driver, use of the 'blob' datatype is not yet supported. e logical SQLNET_BLOB must not be defined or must be defined as "N".
- The default maximum size of long raw data is 100,000 bytes. If your long raw data is longer or significantly shorter than that, you should define the logical SQLNET_MAXLONGRAW to the value of your longest long raw data. Long raw data must be stored in a single insert statement and retrieved in a single get statement. The SQLNET_MAXLONGRAW value is used to allocate the buffer to hold the data, so it must be large enough to hold the entire value of the image data.

Previous Releases: New Features and Fixed Problems

This chapter describes the new features and technical changes to previous releases of Oracle SQL/Services and OCI Services for Oracle Rdb. It also describes problems that were fixed in these products.

4.1 New and Changed General Features in Previous Releases of Oracle SQL/Services

This section highlights new and changed general features that were added in previous releases.

4.1.1 Oracle 10.2.0.5 SQL*Net Transport Support

Oracle SQL/Services release 7.3.2.0 emulates the Oracle 10.2.0.5 SQL*Net transport for SQL*Net dispatchers.

4.1.2 Updated Oracle SQL/Services Server Configuration Guide

The Oracle SQL/Services Server Configuration Guide has been updated for Oracle SQL/Services release 7.3.2.0.

4.1.3 Updated Help for SQLSRV_MANAGE

The information provided by the HELP command in the SQLSRV_MANAGE utility has been updated in Oracle SQL/Services release 7.3.2.0 to reflect updates to the Oracle SQL/Services Server Configuration Guide.

4.1.4 Symbol Tables Added For SQLSRV_NATCONN73.EXE & RMUEXEC73.EXE

Bugs 13068340 & 13640572

In releases of Oracle SQL/Services prior to 7.3.1.1, symbol tables were not provided for the SQLSRV_NATCONN73.EXE and RMUEXEC73.EXE images. Without the symbol tables, bugcheck dumps and traceback information did not provide detailed information for debugging problems in those images.

For instance, a bugcheck occurring in the SQLSRV_NATCONN73.EXE image would look like the following, where details are missing only for that image.

```
*****  
*****SECTION HEADER: MINIMAL STACK DUMP*****  
*****  
PC = 003E86B0 : SQLSRV_NATCONN73  
PC = 00395760 : SQLSRV_NATCONN73  
PC = 00388290 : SQLSRV_NATCONN73  
PC = 00070EB0 : RDB$NATCONN73\gtwmai  
    Module GTWMAI + 00000EB0; line 408326  
PC = 00070220 : RDB$NATCONN73\main  
    Module GTWMAI + 00000220; line 408062  
PC = 000700E0 : RDB$NATCONN73\__main  
    Module GTWMAI + 000000E0; line 408034  
PC = 845446B0 : PTHREAD$RTL\thdBase  
    Module THD_THREAD + 00005BF0; line 245127  
PC = 844FA6C0 : PTHREAD$RTL\pthread_main  
    Module THD_INIT + 000006C0; line 244926  
PC = 80BD9B80 :  
PC = 7ADDDB00 : Image DCL + 0006BB00
```

In Oracle SQL/Services release 7.3.1.1, symbol tables have been included for the SQLSRV_NATCONN73.EXE and RMUEXEC73.EXE images.

4.1.5 Enhanced Help Text for Error Messages

In release 7.3.1.1, help text for Oracle SQL/Services error messages has been enhanced to provide more useful information. This should aid in determining the cause of problems being raised.

4.1.6 Reporting More Information About Client Connections Flagged As Intruders

Bug 12910694

In release 7.3.1.1, Oracle SQL/Services and OCI Services for Oracle Rdb have been enhanced to log the user name, node, client PID, program name and time, when an authorization failure occurs.

For an OCI Services type service, you should see output like the following in the executor log for the service, if a user fails authorization.

```
gta.gtagetpsw: Password for user INVALID_USER not found in table USER$.  
Please run RDB_NATCONN73.COM ADDUSER or call ORA_CREATE_USER  
to add username and password to the database.  
>>>> FAILURE FOR USER: INVALID_USER NODE: ALPHA22 PID: 236002E5  
PROGRAM: $1$DGA227:[ORA92.][bin]SQLPLUS.EXE;1 AT wed sep 14 16:15:46 <<<
```

For a SQL/Services service, you should see output like the following in the dispatcher log, if a user fails authorization.

```
--EVENT BEG: EVENT_LOG ----- Wed Sep 14 16:21:15.860 2011--  
%SQLSRV-I-EVENT_LOG, event logged at line 1087 in file DBS_SECURITY.C;1  
%SQLSRV-E-AUTH_FAILURE, Authentication/authorization failure  
--EVENT END: EVENT_LOG ----- Wed Sep 14 16:21:15.860 2011--
```

```

---EVENT BEG: EVENT_LOG ----- Wed Sep 14 16:21:15.870 2011---
%SQLSRV-I-EVENT_LOG, event logged at line 4448 in file CMD.C;1
%SQLSRV-I-USERNAME, User name: invalid_user
%SQLSRV-I-CONNECTNAME, Connect : CONNECT_0000003
%SQLSRV-I-CONNECTSTATE, Connect state: 1 (ALLOC)
%SQLSRV-I-NODENAME, Node : 10.123.456.789
%SQLSRV-I-APPLNAME, Application : odbcad32
%SQLSRV-I-SERVICENAME, Service : ODBC_TST
---EVENT END: EVENT_LOG ----- Wed Sep 14 16:21:15.870 2011---

```

4.1.7 Text Displayed For SQLSRV\$_SM_NOSUCHDISP Message Has Been Enhanced

Bug 13447144

In Oracle SQL/Services releases prior to 7.3.1.1, if you attempted to shutdown a SQL/Services dispatcher that was inactive, the SQLSRV\$_SM_NOSUCHDISP message was displayed with an unclear error text. This can be seen in the following example.

```

SQLSRV> shut disp SQLSRV_DISP;
%SQLSRV-E-SM_NOSUCHDISP, Dispatcher SQLSRV_DISP does not exist
SQLSRV> show disp SQLSRV_DISP;
Dispatcher SQLSRV_DISP
  State:          INACTIVE
  Autostart:      on
  Max connects:   100 clients
  Idle User Timeout: <none>
  Max client buffer size: 5000 bytes
  Network Ports:
    DECnet object 183          (State)  (Protocol)
    TCP/IP port    1183          Unknown   SQL/Services
  Log path:        SYS$MANAGER:
  Dump path:      SYS$MANAGER:

```

In release 7.3.1.1, the message displayed has been changed to the following.

```

SQLSRV> shut disp SQLSRV_DISP;
%SQLSRV-E-SM_NOSUCHDISP, Dispatcher SQLSRV_DISP does not exist or has not been
started

```

4.1.8 Improved SYS\$HELP:SQLSRV_MESSAGES73.TXT Formatting and Context

Bug 11924731

Beginning with release 7.3.1.1, Oracle SQL/Services generates the file SYS\$HELP:SQLSRV_MESSAGES73.TXT using the same tool as Oracle Rdb, so the formats are now equivalent. The text context has also been updated.

4.1.9 SQLSRV\$CHECK_EXPIRED_PASSWORDS Logical No Longer Supported

Support for the SQLSRV\$CHECK_EXPIRED_PASSWORDS logical was deprecated in release 7.3.0.3. Rather than using this logical, users can log into OpenVMS and modify their password, so that it will no longer be expired. Another option is to have the system manager modify a user's account to set the /NOPWDLIFETIME flag.

4.1.10 Oracle 10.2.0.4 SQL*Net Transport Support

Oracle SQL/Services release 7.3.1 emulates the Oracle 10.2.0.4 SQL*Net transport for SQL*Net dispatchers.

4.1.11 Provide Error Text for Rdb Errors While Registering Users

ER 11677147

In releases prior to 7.3.1, Oracle SQL/Services logged Oracle Rdb errors incurred while registering users by displaying the status code but not the error text as shown in the following example.

```
---EVENT BEG: EVENT_LOG ----- Sun Aug 29 08:53:52.580 2010---
%SQLSRV-I-EVENT_LOG, event logged at line 758 in file SRVEXEUTL.C;1
%SQLSRV-F-INTERRSTS, Internal error; status code of 013881BA
%SQLSRV-E-EXECINITFAILED, Executor initialization failed; process terminating
---EVENT END: EVENT_LOG ----- Sun Aug 29 08:53:52.580 2010---
```

In Oracle SQL/Services release 7.3.1, the text of the Oracle Rdb error will also be displayed.

4.1.12 SQL/Services Now Supports SQLDA ROWID Type

Bug 7022262

In releases prior to 7.3.1, Oracle SQL/Services did not support the SQLDA ROWID type through the Client API when the dialect was set to ORACLE LEVEL1. Furthermore, if the user used the SQL SET SQLDA 'enable rowid type' command, the executor would fail.

4.1.13 Severity of EXECIDLETIMEOUT Message Has Been Modified

Enhancement Request 8938388

In Oracle SQL/Services release 7.3.0.3, the SQLSRV\$\$_EXECIDLETIMEOUT message has been modified in severity from an error to a warning. Since it is quite common for an executor to be terminated due to inactivity, this error message is often found in SQL/Services executor log files. When a user is searching log files for problems, it is preferable that this message not be displayed in the search. The message is displayed in the log file to document that the executor is being shut down due to inactivity and is not necessarily an error. Therefore, its status has been downgraded to a warning. The message will now be displayed in executor log files as follows.

```
---EVENT BEG: EVENT_LOG ----- Fri Apr 2 13:51:15.160 2010---
%SQLSRV-I-EVENT_LOG, event logged at line 7595 in file CMD.C;1
%SQLSRV-W-EXECIDLETIMEOUT, Executor idle time out exceeded
---EVENT END: EVENT_LOG ----- Fri Apr 2 13:51:15.160 2010---
```

4.1.14 Provide Sample Application When Installing Client Kit With Server on OpenVMS

On HP OpenVMS, when the Oracle SQL/Services server kit is installed, the client kit is also installed. Prior to Oracle SQL/Services release 7.3.0.3, the sample application was included in the kit savesets but it wasn't copied onto the system. The sample application files are now provided during server kit installations in SYS\$COMMON:[SYSHLP.EXAMPLES.SQLSRV].

4.1.15 Scan Intrusion Security Now Supported

Enhancement Request 9359432

Oracle SQL/Services release 7.3.0.3 now supports intrusion detection via the OpenVMS Security Services. See the "OpenVMS Guide to System Security" manual for more information on this feature.

Customers are encouraged to upgrade to this release to pick up this security enhancement.

4.1.16 Configurable SYSUAF Last Noninteractive Login Update Frequency

Bug 8533381

Beginning with release 7.3.0.1, Oracle SQL/Services updates the last non-interactive login information in the system authorization file whenever a user makes a connection. With release 7.3.0.2, the frequency that the information is updated is now configurable and will no longer default to updating the information for every connection. See the Oracle SQL/Services Server Configuration Guide for more information on how to configure the frequency that the information is updated.

4.1.17 Shared Memory Usage Information Added to Bugcheck Output

Bug 7113375

Shared memory usage information has now been added at the beginning of bugcheck files, using the same format as the SQLSRV_MANAGE SHOW SERVER command. This will enable users to diagnose when shared memory is low and possibly a cause of the problem reported in the bugcheck file.

This feature was added in Oracle SQL/Services release 7.3.0.2.

4.1.18 Link Time Information Added to Bugcheck Output

Bug 3769341

Oracle SQL/Services release 7.3.0.2 bugcheck dumps have now been enhanced to dump the link date for all images listed in the loaded image section. The following is a sample extract from a bugcheck file.

```
*****
*****SECTION HEADER: LOADED IMAGE INFO*****
*****
```

Active Image list:
Total active images = 23

image name	start	end	link date
DCL	7AE6A000	7AF3C9FF	14-OCT-2008 10:39:02.13
SQLSRV_DISP73	00010000	001649FF	5-NOV-2008 17:33:59.19
DECC\$SHR_EV56	7BE54000	7BEFFF	14-OCT-2008 10:31:25.44
DPML\$SHR	7BAE2000	7BB27FFF	14-OCT-2008 10:30:50.06
CMA\$TIS_SHR	7B8FC000	7B90DFFF	14-OCT-2008 10:30:32.98
SORTSHR	7B7D6000	7B877FFF	14-OCT-2008 10:32:02.16
LIBRTL	7B5BA000	7B60BFFF	14-OCT-2008 10:30:17.98
LIBOTS	7B60C000	7B613FFF	14-OCT-2008 10:30:14.17
SECURESHRP	7B33C000	7B3BDFFF	14-OCT-2008 10:30:47.59
SYS\$BASE_IMAGE	81824670	81839E60	17-NOV-1858 00:00:00.00
SYS\$PUBLIC_VECTORS	81804ED8	818077C8	17-NOV-1858 00:00:00.00
SQLSRV_PRVSHR73	00198000	0023A340	5-NOV-2008 17:33:37.85
SQLSRV_SQLNETSHR73	002B8000	015277FF	17-SEP-2008 11:40:05.26
TRACE	7BEFA000	7BF6BFFF	14-OCT-2008 10:32:52.23
PTHREAD\$RTL	7BB28000	7BB51FFF	14-OCT-2008 10:32:02.51
TCPIP\$IPC_SHR	01906000	019A75FF	4-SEP-2008 02:26:54.85
TCPIP\$ACCESS_SHR	019A8000	01A489FF	4-SEP-2008 02:26:54.32
SQLSRV_MESSAGES	01A6C000	01A73FFF	17-SEP-2008 11:35:26.66
SHRIMMSG	01A74000	01A7A9FF	14-OCT-2008 10:38:50.18
SORTMSG	01A7C000	01A8C1FF	14-OCT-2008 10:32:04.12
DECC\$MSG	01A8E000	01A91FFF	14-OCT-2008 10:37:52.45
DBGTBKMSG	01A92000	01A9F9FF	14-OCT-2008 10:38:49.09
TCPIP\$MSG	01AA0000	01AB63FF	4-SEP-2008 02:26:52.02

4.1.19 Image Name, User and Link Directory Information Added to Bugcheck Output

Bug 3769341

Oracle SQL/Services release 7.3.0.2 now includes the name of the image which is bugchecking, the user who linked the image and the link directory in the header of bugcheck dump files. This information will make it easier to identify the image that is bugchecking, whether or not the image is a special image and which special image it is.

4.1.20 Enhanced Dispatcher and Executor Process Logging

Bugs 6008742 and 3114572

Oracle SQL/Services release 7.3.0.1 has been enhanced to enable users to more easily track application connections and the executors that processed those connections. The name and process ID (PID) of the executor handling a given connect will be entered in the dispatcher log file when the connect is logged. The PID of the executor will be logged in the executor log file, so users will be able

to associate a given connect to a specific executor and its log file. In addition, whenever a connect occurs, an entry will be made in the log file for the executor handling that connect, specifying the connect name. With this information, a user will be able to determine the specific section of the executor log that contains the logging information for a given connect, since an executor can process multiple connects. Given the information in the executor log file, a user will also be able to link a connect to the information in the dispatcher log, including the node name, user name, and application for the client.

4.1.21 Support for Configurable Server Dump Path Argument in SQLSRV_MANAGE

Bugs 5745868 and 5745899

The ability to create, alter and extract a user-specified server dump path has been added to Oracle SQL/Services release 7.3.0.1. The ALTER SERVER and CREATE SERVER commands have been enhanced to add a new DUMP PATH argument. The Oracle SQL/Services Server Configuration Guide had been updated to include this new argument for both commands. It has also been updated to remove the erroneous ALTER and CREATE SERVER LOG PATH argument.

4.1.22 Enhanced Tracking of SQL/Services User Activity in SYSUAF

Bug 5001258

Oracle SQL/Services release 7.3.0.1 has been enhanced to update the last non-interactive login information in the system authorization file (SYSUAF), when a user makes a connection. For accounting and management reasons, it is useful to see when a user account was last used. Often users have created VMS user accounts used only by SQL/Services clients. System managers had no way to determine if those user accounts were actually being used by looking at the account information in the SYSUAF. By tracking the last non-interactive login, system managers will now be able to determine when those user accounts were last utilized.

4.1.23 Oracle 10gR2 SQL*Net Transport Support

Oracle SQL/Services release 7.3 emulates the Oracle 10gR2 SQL*Net transport for SQL*Net dispatchers.

4.1.24 Performance Improvement on OpenVMS I64 Platform

On the OpenVMS I64 platform, Oracle SQL/Services release 7.3 uses native Oracle RDBMS 10gR2 SQL*Net transport functionality. In 7.2 releases, a translated SQLSRV_SQLNETSHR image was used. Performance has been significantly enhanced using the native image.

4.1.25 Support for New SQLSRV_EXT_CONFIG70TO73.COM Command Procedure

Bug 5745427

A new command procedure, SQLSRV_EXT_CONFIG70TO73.COM, has been added for Oracle SQL/Services release 7.3. This command procedure is used to upgrade release 7.0 configuration files to release 7.3.

4.1.26 Insufficient Shared Memory Conditions Now Logged

In SQL/Services release 7.3, insufficient memory errors are now written into the executor, dispatcher and monitor log files, in addition to the bugcheck dump file. In some cases, the error is recoverable and does not cause a bugcheck. For instance, a dispatcher may not be able to create a new executor because of insufficient shared memory. This is not a fatal error, because other executors may terminate, freeing up memory for subsequent executors to be created. The insufficient memory problem may have been a temporary condition. In those cases, it is helpful to log the problem, so users are aware that they have reached the shared memory threshold and may need to increase the value.

4.1.27 Connect State Logging Enhanced

Bug 6354902

SQL/Services release 7.3 has been enhanced to log a text value for the connect state, in addition to the numerical value, whenever the connect state is being logged. The following is an example of the enhanced logging.

```
---EVENT BEG: EVENT_LOG ----- Mon Dec 17 12:31:21.590 2007---
%SQLSRV-I-EVENT_LOG, event logged at line 2915 in file CMD.C;6
%SQLSRV-I-CONNECTNAME, Connect : CONNECT_0000001
%SQLSRV-I-CONNECTSTATE, Connect state: 3 (RUNNING)
%SQLSRV-I-SERVICENAME, Service : TST_I73
---EVENT END: EVENT_LOG ----- Mon Dec 17 12:31:21.600 2007---
```

4.1.28 VMS Mixed Case Passwords Supported

Enhancement request: 5916102

In prior releases of Oracle SQL/Services and OCI Services for Oracle Rdb, using mixed case passwords would fail even when the OpenVMS /FLAGS=PwdMix flag was specified for the user in the system authorization file (UAF).

Support for this OpenVMS version 7.3-2 feature has been included in Oracle SQL/Services and OCI Services for Oracle Rdb release 7.2.0.2.

Support for this feature has also been included in Oracle Rdb release 7.2.1.2. Oracle SQL/Services and OCI Services for Oracle Rdb requires that this or a subsequent release of Oracle Rdb be installed in order to take advantage of this feature. The feature is implemented in a version independent image for Oracle Rdb. Therefore, the feature can be used in Oracle SQL/Services and OCI Services for Oracle Rdb executing against a prior Oracle Rdb 7.0 or 7.1 release, as long as the required Oracle Rdb release has been installed on the system.

Refer to OpenVMS version 7.3-2 documentation for more information on the HP OpenVMS Authorize Utility PwdMix flag for user accounts.

4.1.29 Support for New SQLSRV_EXT_CONFIG70TO72.COM Command Procedure

Bug 5745427

A new command procedure, SQLSRV_EXT_CONFIG70TO72.COM, has been added for Oracle SQL/Services release 7.2.0.2. This command procedure is used to upgrade release 7.0 configuration files to release 7.2.

4.1.30 Enhanced Logging in SQL/Services Log Files

ER 5388589

SQL/Services log files did not identify the SQL/Services version, current time stamp, hardware type or operating system version. This identifying information is often useful to track problems.

With SQL/Services release 7.2.0.1 and later, the following header will now appear in SQL/Services executor, dispatcher and monitor log files to record that information.

```
$! -----$!
$! Oracle SQL/Services V7.2-01 executor log file
$! Wed Jul 19 11:41:27 2006
$!
$! -----$!
$! This is a AlphaServer 4X00 5/533 4MB running VMS V7.3-2
$!
```

4.1.31 Enhanced Error Reporting Creating & Opening Process Command Procedures

ER 5388540

When an error occurred creating or opening a command procedure used to create monitor, dispatcher and executor processes, SQL/Services logged the error returned by the CC creat builtin function. This error was not the specific VMS error and was not always useful in diagnosing problems.

With SQL/Services release 7.2.0.1 and later, the OpenVMS error will also be logged. The following is a sample extract from a log file, containing such an error condition.

```
---EVENT BEG: EVENT_LOG ----- Mon Jul 17 16:58:45.010 2006---
%SQLSRV-I-EVENT_LOG, event logged at line 1122 in file DBS_PROCESS_VMS.C;5
%SQLSRV-E-SM_FOPEN_ERR, Error opening DISK2:[JONES]SQS_NODE_SVC040000171.COM;
%SQLSRV-E-ERROR_TEXT, Error text: permission denied
%RMS-E-PRV, insufficient privilege or file protection violation
---EVENT END: EVENT_LOG ----- Mon Jul 17 16:58:45.010 2006---
```

4.1.32 Oracle SQL/Services Available on OpenVMS I64

Oracle SQL/Services release 7.2 is available on the HP OpenVMS Industry Standard 64 for Integrity Servers operating system.

4.2 Oracle SQL/Services Client API New and Changed Features in Previous Releases

4.2.1 New Oracle SQL/Services Client API Kit for 64-Bit Linux Platforms

Beginning with release 7.3.2.0, Oracle SQL/Services provides a 64-bit Linux client API kit. This kit supports the following 64-bit Linux platforms and releases.

- 64-bit Oracle Enterprise Linux 6.3 or later
- 64-bit openSUSE 12.1 or later
- 64-bit Red Hat Enterprise Linux 6.3 or later
- SUSE Linux Enterprise 11 SP2 or later

The Oracle SQL/Services Client APIs kit now includes a Linux64 kit directory containing the 64-bit Linux client API kit. See the installation guide provided in the Linux64 kit directory for details on installing this client kit. See the latest Guide to Using the Oracle SQL/Services Client API for more detailed information.

4.2.2 Updated Oracle SQL/Services Client API Kit for 32-Bit Linux Platforms

In release 7.3.2.0, Oracle SQL/Services provides an updated 32-bit Linux client API kit. The openSUSE and SUSE Linux Enterprise operating systems are now supported. This kit supports the following 32-bit Linux platforms and releases.

- 32-bit Oracle Enterprise Linux 5.0 or later
- 32-bit openSUSE 12.1 or later
- 32-bit Red Hat Enterprise Linux 5.0 or later
- 32-bit SUSE Linux Enterprise 11 SP2 or later

The Oracle SQL/Services Client APIs kit now includes a Linux32 kit directory containing the 32-bit Linux client API kit. See the installation guide provided in the Linux32 kit directory for details on installing this client kit. See the latest Guide to Using the Oracle SQL/Services Client API for more detailed information.

4.2.3 Updated Oracle SQL/Services Client API Kits for Windows Platforms

Oracle SQL/Services client API kits release 7.3.2.0 now supports the Windows 8 and Windows 8 X64 platforms. The Windows 2000 platform is no longer supported.

For installation on the Windows 8 platform, see the installation guide provided in the Windows32 kit directory for details on installing this client kit. For installation on the Windows 8 X64 platform, see the installation guide provided in the Windows64 kit directory for details on installing this client kit. See the latest Guide to Using the Oracle SQL/Services Client API for more detailed information.

There is a problem running the Oracle SQL/Services IVP on Windows8 and Windows 8 X64, as seen below:

```
Enter the node name where the server resides: MYNODE
Enter the Network Transport [DECNET/TCPIP/NAMPIPE]: TCPIP
Enter the username: SMITH
Enter the password: ***
Enter a list of service names to be tested, separated by comma [GENERIC]:
***** Connecting to GENERIC service *****
***** Oracle SQL/Services IVP Error *****
SQLCA: SQLCODE: -2012
SQLERRD[0]: 13 SQLERRD[2] 0
*** Oracle SQL/Services IVP failed when accessing the GENERIC service ***
```

For Oracle SQL/Services release 7.3.2.0, you can workaround this problem by following these steps:

1. Right-click on the Oracle SQL/Services IVP shortcut and choose "Properties".
2. When the Properties dialog box appears, click the "Compatibility" tab.
3. Click the "Run this program as an administrator" box.
4. Click "OK" and then run the SQL/Services IVP.

4.2.4 Desupport of HP Tru64 Unix Platform

The HP Tru64 Unix platform has been desupported in Oracle SQL/Services release 7.3.2.0. This platform was desupported by HP on December 31, 2012. The HP Tru64 Unix kit will no longer be included in the Oracle SQL/Services Client APIs kit.

4.2.5 Updated Guide to Using the Oracle SQL/Services Client API

The Guide to Using the Oracle SQL/Services Client API has been updated for Oracle SQL/Services release 7.3.2.0.

4.2.6 Updated Help For SQL/Services

The SQL_SERVICES73 help topic has been updated for Oracle SQL/Services release 7.3.2.0 to reflect changes made in the Guide to Using the Oracle SQL/Services Client API.

4.2.7 Help for Windows Client Kits Replaced

Bug 12424944

The outdated, unsupported Microsoft format HELP file has been replaced with the Guide to Using the Oracle SQL/Services Client API manual in PDF format on the Oracle SQL/Services Windows client kits in Oracle SQL/Services release 7.3.1.1.

4.2.8 Updated Linux Client API

Oracle SQL/Services release 7.3.1 includes a new, updated Linux Client API. The Oracle SQL/Services Linux Client API now supports the Red Hat Linux and Oracle Linux operating systems release 5.0 and later. Release 5.0 is now the minimum supported release for these two operating systems. See the Guide to Using the Oracle SQL/Services Client API and the Installing the Oracle SQL/Services Linux Client API manuals for more information.

4.2.9 SQLSTATE Now Available Through SQL/Services Client API

Bug 2247393

A new routine SQLSRV_SQLCA_SQLSTATE has been added to the Oracle SQL/Services Client API, in Oracle SQL/Services release 7.3.1. This routine can be used to retrieve the SQLSTATE for the last statement executed. See the Guide to Using the Oracle SQL/Services Client API for more information on this routine.

4.2.10 Updated SQL/Services Client API Kit for 32-bit Windows Platforms

The Oracle SQL/Services Client API kit for 32-bit Windows platforms has been updated for Oracle SQL/Services release 7.3.0.3 and is equivalent in functionality to the client API kits for all the other supported platforms. Support has also been added for Windows 7, Server 2003 and Server 2008. See the installaton guide provided in the Windows32 kit directory for details on installing this client kit.

4.2.11 New SQL/Services Client API Kit for 64-bit Windows Platforms

Support for a new Oracle SQL/Services Client API kit for Windows 64-bit platforms has been added in Oracle SQL/Services release 7.3.0.3. Windows XP X64, Vista X64, 7 X64, Server 2003 X64, and Server 2008 X64 servers are all supported by this kit. See the installaton guide provided in the Windows64 kit directory for details on installing this client kit.

See the latest Guide to Using the Oracle SQL/Services Client API for more detailed information.

4.2.12 New SQL/Services Client API Routines

ER 8826734

The following new Oracle SQL/Services client API routines have been added in Oracle SQL/Services release 7.3.0.3.

```
sqlsrv_sqlda_sqld73
sqlsrv_sqlda2_sqld73
sqlsrv_sqlda_column_name73
sqlsrv_sqlda2_column_name73
sqlsrv_sqlda_column_type73
sqlsrv_sqlda2_column_type73
sqlsrv_sqlda_bind_data73
sqlsrv_sqlda2_bind_data73
sqlsrv_sqlda_unbind_sqlda73
sqlsrv_sqlda2_unbind_sqlda73
sqlsrv_sqlda_ref_data73
sqlsrv_sqlda2_ref_data73
sqlsrv_sqlda_unref_data73
sqlsrv_sqlda2_unref_data73
sqlsrv_sqlda_get_data73
sqlsrv_sqlda2_get_data73
sqlsrv_sqlda_set_data73
sqlsrv_sqlda2_set_data73
sqlsrv_sqlda_set_sqllen73
sqlsrv_sqlda2_set_sqllen73
sqlsrv_sqlda2_char_set_info73
```

These routines are identical to the similarly named routines without the "73", except for the addition of an `associate_id` parameter. The use of this parameter improves the execution and performance of the specific routines. Oracle highly recommends the use of these new routines.

The sample application, `SQLSRV$DYNAMIC.C`, has been updated to use these new Oracle SQL/Services client API routines.

See the latest Guide to Using the Oracle SQL/Services Client API for more detailed information about these new routines.

4.2.13 Configurable Port Id and DECnet Object Name For Each Association

ER 8826600

In Oracle SQL/Services release 7.3.0.3, the `associate_str` association structure has been modified to include `port_id` and `objnam` fields where the TCPIP port id and DECnet object name can be specified for a given association. Use of these new fields requires that the new `associate_str` structure version, `SQLSRV_V730`, be specified in the structure.

See the latest Guide to Using the Oracle SQL/Services Client API for more detailed information about the new `associate_str` structure.

4.2.14 DECnet No Longer Supported on Windows Platforms

The Oracle SQL/Services Client API no longer supports DECnet on Windows platforms, beginning with release 7.3.0.3. HP will be desupporting Pathworks 32 as of May 31, 2010.

4.3 Oracle SQL/Services Errors Fixed in Prior Releases

The following known problems found in the Oracle SQL/Services OpenVMS server have been fixed in previous releases.

4.3.1 Oracle SQL/Services PID Output Now Always Displayed in HEX

In prior releases, logging of process IDs (PID) was sometimes done in decimal, rather than hexadecimal characters. In release 7.3.2 and later, all process IDs will be displayed as a hexadecimal value.

4.3.2 Excessive Connection Logging Occurs For Transaction Reusable Services

Bug 12910614

In Oracle SQL/Services releases prior to 7.3.1.1, every time a connect user bound to an executor that fact was logged. For transaction reusable services, this happens often. Logging like the following would be seen several times for each user connected via a transaction reusable service.

```
---EVENT BEG: EVENT_LOG ----- Wed Aug 24 08:59:21.990 2011---
%SQLSRV-I-EVENT_LOG, event logged at line 291 in file EXEC.C;1
%SQLSRV-I-CONNECTNAME, Connect : CONNECT_0000001
---EVENT END: EVENT_LOG ----- Wed Aug 24 08:59:21.990 2011---
```

In Oracle SQL/Services release 7.3.1.1, logging will now only be done the first time a connect user is bound, for transaction reusable services.

4.3.3 Query on Bigint and Double Precision Columns Got Alignment Faults

Bug 9219886

Performing a query on bigint or double precision columns resulted in alignment faults when executing on an Itanium system.

This problem has been corrected in Oracle SQL/Services release 7.3.1.

4.3.4 Specifying Dispatcher Log File Required a Colon in Logical Names

Bug 9442074

If a logical was used to specify the location of a dispatcher log file, the dispatcher log path had to be specified with a colon (:) appended to the logical name. Otherwise, the dispatcher failed to start, as shown in the following example.

```

$ define/system log_here USERS:[JONES]
$ sqlsrv_manage73
SQLSRV> alter disp oci_disp log path 'log_here';
%SQLSRV-S-ALTER_RESTART, Restart object to have altered settings take effect
SQLSRV> shutdown dispatcher oci_disp;
SQLSRV> start dispatcher oci_disp;
%SQLSRV-E-SM_DISPSTARTFAI, Dispatcher OCI_DISP could not be started
SQLSRV> alter disp oci_disp log path 'log_here:';
SQLSRV> start dispatcher oci_disp;
SQLSRV> show disp oci_disp full;
Dispatcher OCI_DISP
  State:          RUNNING
  Autostart:      on
  Max connects:  100 clients
  Idle User Timeout:  <none>
  Max client buffer size: 5000 bytes
  Network Ports:          (State)  (Protocol)
    SQL*Net listener oci_listener      Running  OCI clients
  Log path:        LOG_HERE:
  Dump path:      SYS$MANAGER:
  Log File:       USERS:[JONES]SQS_NODE_OCI_DISP00D73.LOG;
  Dump File:      SYS$SYSROOT:[SYSMGR]SQS_NODE_OCI_DISP00D.DMP;

```

This problem has been corrected in Oracle SQL/Services release 7.3.1. A colon will no longer be required in the specification of the dispatcher log path.

4.3.5 SHOW SERVICES Command Displays Two Lines for Services With Long Names

Bug 8333899

The SQLSRV_MANAGE SHOW SERVICES command splits the output into two lines if the service name is very long. For example:

Name	State	Per-Exec	Max	Active	Min	Max	Running
THIS_HAS_VERY_LONG_NAME	INACTIVE	1	1	0	0	1	0

Using multiple lines to display the information for one service makes it difficult for other utilities to analyze the output. The Oracle Rdb Extension to Oracle Enterprise Manager is one example of a utility that fails when two lines are used in the display.

This problem has been corrected in Oracle SQL/Services release 7.3.1. The output for SHOW SERVICES was modified to accommodate the maximum length service name (31 characters) to always fit in one line.

4.3.6 SQL/Services Bugchecked After an RMS-E-FLK Error

Bug 9543460

In releases prior to 7.3.1, attempts to read or write into the System User Authorization File (SYSUAF) that failed with an RMS-E-FLK error caused a fatal bugcheck.

For example, on an attempt to write into the SYSUAF, the following error was displayed in the executor log.

```
---EVENT BEG: EVENT_LOG ----- Thu Mar 18 02:51:44.670 2010---
%SQLSRV-I-EVENT_LOG, event logged at line 1663 in file DBS_PROT_VMS.C;1
Error setting VMS process user name
%RMS-E-FLK, file currently locked by another user
---EVENT END: EVENT_LOG ----- Thu Mar 18 02:51:44.670 2010---
```

This error was followed by a bugcheck dump.

Oracle SQL/Services release 7.3.1 will now retry if it fails to update or read the SYSUAF information. It will no longer bugcheck if the operation fails.

4.3.7 Cannot Attach to Service When User Account Has No Password

Bug 9849082

In release 7.3.0.3, users who had /NOPASSWORD set in the System User Authorization File (SYSUAF) were unable to connect. They failed account authorization checks.

This problem has been fixed in Oracle SQL/Services release 7.3.1.

4.3.8 Access Violations During OCI Services for Oracle Rdb Bugchecks

Access violations sometimes occurred while OCI Services for Oracle Rdb was dumping information for a bugcheck.

This problem has been fixed in Oracle SQL/Services and OCI Services for Oracle Rdb release 7.3.1.

4.3.9 SQLSRV-E-PWDEXPIRED Error Restored

Bug 11831591

In Oracle SQL/Services releases prior to 7.3.0.3, if a user account's password was expired, an attempt to connect got the SQLSRV-E-PWDEXPIRED error. When intrusion detection was added in release 7.3.0.3, this error changed to SQLSRV-F-GETACCINF. Therefore, applications were unable to trap expired password errors in order to prompt the user for a new password.

In Oracle SQL/Services release 7.3.1, the SQLSRV-E-PWDEXPIRED error has been restored and the SQLSRV-F-GETACCINF error will no longer be returned in this case. This fix also requires the installation of the RDB\$COSIP.EXE image from the Oracle Rdb release after 7.2.4.2 or a special image kit available from Oracle Support.

4.3.10 Clarification of the BYTLM Check During Oracle SQL/Services Installation

Bug 9034427

In Oracle SQL/Services release 7.3.0.3, the installation procedure and the documentation have been modified to make it clear that the minimum BYTLM requirement is for the installing user's currently available quota rather than the limit set in the system authorization file.

4.3.11 Dispatcher Failed on Alpha When a Listener Failed to Start

Bugs 7380055 & 7380344

If a dispatcher was defined using multiple listeners and any one of those listeners failed to start, the dispatcher failed to start on Alpha. The dispatcher would log an error and continue to start on Itanium, if at least one valid ADDRESS line was found. This behaviour made it impossible to have one LISTENER.ORA and one Oracle SQL/Services configuration file for an entire cluster.

The following are the errors found in the dispatcher log file, when this failure occurred:

```
---EVENT BEG: EVENT_LOG ----- Thu Aug 28 04:19:10.880 2008---
%SQLSRV-I-EVENT_LOG, event logged at line 714 in file COM_TNS.C;1
%SQLSRV-E-TNSFAILURE, Oracle Net TNS nslisten() service has failed
%SQLSRV-E-TNSEXTEDDED, Oracle Net TNS error codes: primary (12545) secondary
(12560)
---EVENT END: EVENT_LOG ----- Thu Aug 28 04:19:10.900 2008---

---EVENT BEG: EVENT_LOG ----- Thu Aug 28 04:19:10.970 2008---
%SQLSRV-I-EVENT_LOG, event logged at line 10740 in file CMD.C;1
%SQLSRV-E-TNSFAILURE, Oracle Net TNS oci_listener_2() service has failed
---EVENT END: EVENT_LOG ----- Thu Aug 28 04:19:10.970 2008---

---EVENT BEG: EVENT_LOG ----- Thu Aug 28 04:19:10.970 2008---
%SQLSRV-I-EVENT_LOG, event logged at line 10792 in file CMD.C;1
%SQLSRV-E-NOLISCREATED, No listeners could be created
---EVENT END: EVENT_LOG ----- Thu Aug 28 04:19:10.970 2008---
```

For example, if the OCI dispatcher were defined as:

```
SQLSRV> create dispatcher OCI_DISP
SQLSRV_    autostart on
SQLSRV_    network_port sqlnet listener "oci_listener_1" protocol oci
SQLSRV_    network_port sqlnet listener "oci_listener_2" protocol oci
SQLSRV_ ;
```

and the listeners were defined in LISTENER.ORA as:

```
OCI_LISTENER_1 =
(ADDRESS_LIST =
(ADDRESS =
(COMMUNITY = TCP_COM.world)
(PROTOCOL = TCP)
(Host = NODE_A)
(Port = 1527)
)
)
OCI_LISTENER_2 =
(ADDRESS_LIST =
(ADDRESS =
(COMMUNITY = TCP_COM.world)
(PROTOCOL = TCP)
(Host = NODE_B)
(Port = 1527)
)
)
```

An attempt to start up OCI_DISP on NODE_A would fail due to the errors when OCI_LISTENER_2 failed to start up.

This problem has been corrected in OCI Services for Oracle Rdb release 7.3.0.2. If at least one of the listeners specified for the dispatcher starts up successfully, the OCI dispatcher startup is successful.

4.3.12 Server Bugcheck Occurred After Server Client Aborted With Ctrl C

Bug 8265245

If a request was aborted by a control C command, a subsequent request from the same client would sometimes result in a bugcheck and shutdown of the SQL/Services server.

The following is an example of this problem, where a user had over 300 services to be displayed.

```
$ SQLSRV_MANAGE73
SQLSRV> connect server;
SQLSRV> show services;
^C
$ SQLSRV_MANAGE73
SQLSRV> connect server;
SQLSRV> show services;
%SQLSRV-E-READERR, Error on read
%SYSTEM-F-LINKDISCON, network partner disconnected logical link
%SQLSRV-E-READERR, Error on read
```

At this point, the SQL/Services server has shutdown.

This problem has been corrected in Oracle SQL/Services release 7.3.0.2.

4.3.13 SQLSRV_MANAGE CONNECT SERVER Got SYSTEM-F-RANGEERR Error

Bug 6188111

If you specified keyword USING rather than USER before the username, the SQLSRV_MANAGE CONNECT SERVER command got the following errors.

```
SQLSRV> CONNECT SERVER USING "name" USING "password";
%SYSTEM-F-RANGEERR, range error, PC=0000000000078568, PS=0000001B
Improperly handled condition, image exit forced by last chance handler.
...
```

This problem has been corrected in Oracle SQL/Services release 7.3.0.1.

4.3.14 Problem Processing SQL Initialization File

Bug 5590529

For universal non-OCI services, the SQL initialization file would fail on commands which required that the database already be attached, due to the fact that it was being executed prior to attaching to the database.

This problem has been corrected in release 7.3. The database attach will now be done prior to executing the SQL initialization file.

4.3.15 Security Problem Fixed

By emulating the Oracle 10gR2 listener, Oracle SQL/Services release 7.3 and later now have tighter security via the listener. Problems that caused denial-of-service problems in prior releases have now been resolved with this new listener.

4.3.16 Problem With Error Message Truncation

Bug 6374049

In some cases, error messages were being written to a buffer which was not large enough to accommodate the entire error message text and the error message was truncated. The incomplete message text was then written to the SQL/Services log files.

This problem has been corrected in release 7.3.

4.3.17 CMA Errors Now Display Secondary Error Message

On Itanium systems, exceptions are processed through pthreads, which envelops the SQL/Services error with a CMA error. In some cases, the SQL/Services error was displayed as an object number, rather than a text error message, such as the following.

```
%SQLSRV-W-EXCEPTION_RAISE, Exception raised: %CMA-F-EXCEPTION, exception raised;  
address of exception object 00050C00
```

Since this type of error message is not useful in diagnosing a problem SQL/Services release 7.3 has been modified to make all object type messages into useful text messages. The above example will now be displayed as follows.

```
%SQLSRV-W-EXCEPTION_RAISE, Exception raised: %CMA-F-EXCCOPLOS, exception raised;  
some information lost, -SQLSRV-F-INSUFFICIENT_ME, UTL_INSUFFICIENT_MEMORY
```

4.3.18 SQL/Services Configuration File Upgrade Between 71 and 72 Releases

Bug 5765415

In Oracle SQL/Services 7.2 releases prior to 7.2.0.2, a user was required to create a new configuration file (SQLSRV_CONFIG_FILE72.DAT) for the first release 7.2 installation.

Beginning with Oracle SQL/Services release 7.2.0.2, SQLSRV_CONFIG_FILE71.DAT can now be copied to SQLSRV_CONFIG_FILE72.DAT and SQL/Services will execute successfully with this new configuration file, without any other modifications to the configuration file.

This problem has been corrected in release 7.2.0.2.

4.3.19 SQLSRV_CREATEnn.SQS Missing SQL Version

Bugs 5978019, 5741971

In release 7.2.0.1, when the Oracle SQL/Services installation generated the SQLSRV_CREATEnn.SQS file for the creation of the RMU_SERVICE and OCI_SAMPLE services, the SQL VERSION was missing. This caused the creation of those services to fail, during the creation of a new configuration file.

This problem has been corrected in Oracle SQL/Services release 7.2.0.2.

4.3.20 Improved Logging on Dispatcher Listener Startup Failure

Bug 557878

In releases prior to 7.2.0.2, when Oracle SQL/Services was unsuccessful in starting up an OCI dispatcher due to problems finding the LISTENER.ORA file or the dispatcher service definition in that file, the information logged to the dispatcher log file was not helpful in diagnosing the problem.

```
-----EVENT BEGIN: EVENT_LOG at Mon Sep 29 1997 10:25:15.942-----
%SQLSRV-I-EVENT_LOG, event logged at line 990 in file COM_TNS.C;1
%SQLSRV-E-TNSFAILURE, Oracle SQL*Net TNS nlpagas() service has failed
%SQLSRV-E-ERROR_TEXT, Error text: oci_listener
-----EVENT END : EVENT_LOG at Mon Sep 29 1997 10:25:15.984-----
```

In release 7.2.0.2, Oracle SQL/Services logs more helpful information, such as the following.

```
---EVENT BEG: EVENT_LOG ----- Fri Apr 27 10:29:59.440 2007---
%SQLSRV-I-EVENT_LOG, event logged at line 1452 in file COM_TNS.C;2
%SQLSRV-E-TNSFAILURE, Oracle Net TNS nlpagas() service has failed
%SQLSRV-E-ERROR_TEXT, Error text: oci_listener
%SQLSRV-E-TNSEXTEDDED, Oracle Net TNS error codes: primary (408) secondary (0)
%SQLSRV-E-ERROR_TEXT, Error text: LISTENER.ORA does not exist in the expected location
%SQLSRV-E-ERROR_TEXT, Error text: or there is no valid entry for the above named
service
---EVENT END: EVENT_LOG ----- Fri Apr 27 10:29:59.470 2007---
```

4.3.21 SQLSRV_MANAGE EXTRACT Command Truncates Port Names

Bug 5867554

In releases prior to 7.2.0.2, the SQLSRV_MANAGE EXTRACT command would truncate port names that were more than 13 characters in length. For example, in the following "oci_listener_test" was truncated to "oci_listener_".

```
SQLSRV> show dispatcher oci_disp_test;
Dispatcher OCI_DISP_TEST ...
Network Ports: (State) (Protocol)
  SQL*Net listener oci_listener_test Unknown OCI clients
SQLSRV> extract dispatcher oci_disp_test;
  Create Dispatcher OCI_DISP_TEST ...
  network_port sqlnet listener oci_listener_ protocol OCI
```

This problem has been corrected in Oracle SQL/Services release 7.2.0.2.

4.3.22 Security Problems Fixed

Security problems have been fixed in Oracle SQL/Services release 7.2.0.2.

4.3.23 Shared Memory Leak Using Universal Services Fixed

In Oracle SQL/Services releases prior to 7.2.0.2, there was a minor shared memory leak every time a client connected using a universal service. After a significant number of connections, this would eventually lead to insufficient shared memory exceptions, requiring a restart of the SQL/Services server.

This problem has been corrected in Oracle SQL/Services release 7.2.0.2.

4.3.24 Problem Using Persona Feature With JDBC Dispatchers

TAR 15930012.6

The JDBC Dispatcher did not inherit IMPERSONATE privilege and this sometimes caused use of the persona feature to fail. SQL/Services will now start the JDBC dispatcher with IMPERSONATE privilege.

This problem has been corrected in release 7.2.0.1.

4.3.25 Poor Performance From OCI Queries

Bugs 3259208, 4770496, 5144164

Oracle SQL/Services release 7.1.5.8 introduced a problem that could cause queries from an OCI source to sometimes take an extraordinarily long time to complete. Examination of the SQL/Services processes would show that they were idle even though the client had not received a response from SQL/Services.

This problem was introduced by changes in the underlying Oracle NET libraries employed by SQL/Services. There were instances where a network message would arrive but notification of that arrival was not being delivered to the SQL/Services dispatcher. When that occurred, SQL/Services would only see that a new network message had arrived when it did periodic polling.

There is no workaround for this issue.

This problem has been corrected in release 7.2.0.1. Notification of network message arrival is now done immediately.

4.3.26 Misleading Dispatcher Logging Entries Removed

Bug 5148550

When an Oracle Net connection was successfully disconnected, the following information was entered into the dispatcher log. This would occur for any executor using the SQLNET protocol, such as an OCI Services connection. Since the logging was done for every connection, it tended to make dispatcher log files large.

Dispatcher log entry:

```
---EVENT BEG: EVENT_LOG ----- Fri Mar 31 09:40:31.5602006---
%SQLSRV-I-EVENT_LOG, event logged at line 2496 in file COM_TNS.C;1
%SQLSRV-E-TNSFAILURE, Oracle Net TNS nsrecv() service has failed
%SQLSRV-E-TNSEXTEDDED, Oracle Net TNS error codes: primary (12537) secondary
(12560)
---EVENT END: EVENT_LOG ----- Fri Mar 31 09:40:31.5602006---
```

This message (12537) is actually an informational message from Oracle TNS. There is no need to log the message. It appears to be reporting a problem, rather than a success condition, causing confusion. It has now been removed from dispatcher logging in Oracle SQL/Services release 7.2.0.1.

4.3.27 SQLSRV\$MOD*.EXE Files Removed From the SQL/Services Kit

Bug 5222605

SQLSRV\$MOD images are part of the Oracle Rdb SQL component. Due to a past problem, some corrected SQLSRV\$MOD images were shipped on the SQL/Services kit to be installed if needed to supercede older images. The SQL/Services startup and shutdown procedures installed and deinstalled these images.

Because the need for these images no longer exists, they have been removed from the SQL/Services kit and procedures in Oracle SQL/Services release 7.2.0.1.

4.3.28 Failure to Start 2PC Using OCI Universal Services

In releases 7.1.6, 7.1.6.1, and 7.2, attempting to access an OCI universal service using two-phase commit failed to start a two-phase commit transaction and therefore reverted to a one-phase commit transaction.

This problem has been corrected in release 7.2.0.1.

4.3.29 Occasional Access Violations During OCI Bugcheck Dumps

Occasionally, an access violation would occur during the process of writing an OCI bugcheck dump file.

This problem has been corrected in release 7.2.0.1.

4.3.30 SQL/Services Installation Procedure Fixes SQL Version Specified

During SQL/Services installation, the user is asked to specify the SQL version for the generic service. If the user specified more than 2 digits in that version number, the SQL/Services installation would fail.

This problem has been corrected in release 7.2.0.1. The installation procedure now truncates the version to 2 digits, as required.

4.3.31 Monitor and Dispatcher Processes in CPU Loop

In releases prior to 7.2.0.1, the SQL/Services monitor and dispatcher processes may sometimes get into a deadlock condition where both processes are in a CPU loop. If SQL/Services is configured with services that have a bad SQL init file with the minimum executor parameter set to greater than 0, starting up the SQL/Services server can, in rare occasions, cause the SQL/Services monitor and dispatcher processes to be in a CPU loop waiting for a mutex.

4.3.32 PROCESS_INIT Defined as Keyword LOGIN Could Fail

Bug 4664833

Starting an executor with PROCESS_INIT defined as keyword LOGIN would sometimes fail with garbage in the login command file name.

This problem was corrected in release 7.1.6.1.

4.3.33 Monitor Aborts When Connection Cancelled

If you attempted to use the monitor port for an OCI connection and then cancelled the process, the monitor would abort.

This problem was fixed in release 7.2.

4.4 New and Changed Features for Previous OCI Services for Oracle Rdb Releases

This section highlights new and changed features for previous OCI Services for Oracle Rdb releases.

4.4.1 Oracle 10.2.0.5 Library Support

OCI Services for Oracle Rdb release 7.3.2.0 now emulates the Oracle RDBMS release 10.2.0.5 libraries and identifies itself as an Oracle RDBMS release 10.2.0.5 database to the client. This allows applications to use new features in Oracle RDBMS release 10.2.0.5. OCI Services for Oracle Rdb supports OCI client releases as supported by Oracle RDBMS release 10.2.0.5.

4.4.2 Enhancements to OCI Logging

Bug 15866472

In OCI Services for Oracle Rdb release 7.3.2.0, there are 2 new OCI Services for Oracle Rdb debug flags, B and Y, that provide reduced logging of SQL statements and their parameters and of transactions. They may be used separately or together, and also may be used with the debug flag T which prepends a timestamp to the beginning of each log message. Debug flag B specifies that SQL statements and their parameters are to be logged in abbreviated logging messages. Debug flag Y specifies that abbreviated logging is to be done for 2pc transactions.

Following are 2 sections of a log file with both B and Y debug flags set:

Example 1: Logging of a 2pc transaction from the begin transaction to the commit

```
gtabegn: begin transaction id: ORA92.5e776ab6.1299.18.298503,
  bid = 13051200078e04000104
gtapars: stmt(1): SELECT * FROM "R_TRANSPI_MODE"
gtapars: stmt(1): SELECT "A1"."TDESC_TRMO", "A1"."TSDESC_TRMO"
  FROM "R_TRANSPI_MODE" "A1" WHERE "A1"."CMODE_TRANSPI"='1'
gtapars: stmt(2): SELECT * FROM "R_TRANSPI_MODE"
gtapars: stmt(2): UPDATE "R_MODE" "A1"
  SET "TRMO1" = :B1 :I1, "TRMO2" = :B2 :I2
  WHERE "A1"."TRANSPI"='1'
Stmt 2, param[0]: type: 449, name: B1, val: test 1
Stmt 2, param[1]: type: 449, name: B2, val: Test2
gtaprtr: prepare transaction id: ORA92.5e776ab6.1299.18.298503
gtapare: stmt: set all constraints immediate
gtacomm: commit transaction id: ORA92.5e776ab6.1299.18.298503,
  bid = 13051200078e04000104
```

Example 2: Logging of a SQL statement with multiple bind variables executed several times

```
gtapars: stmt(1): CREATE TABLE OTST (T1 CHAR(10), T2 VARCHAR(10), N1 INT)
gtapars: stmt(2): INSERT INTO OTST (T1, T2, N1)
  VALUES (:T1, :T2, :N1) RETURNING DBKEY INTO :ORA_DBKEY
Stmt 2, param[0]: type: 449, name: T1, val: A2345
Stmt 2, param[1]: type: 449, name: T2, val: A2345
Stmt 2, param[2]: type: 453, name: N1, val: 1
Stmt 2, param[0]: type: 449, name: T1, val: A234567890
Stmt 2, param[1]: type: 449, name: T2, val: A234567890
Stmt 2, param[2]: type: 453, name: N1, val: 22
Stmt 2, param[0]: type: 449, name: T1, val: A234567890
Stmt 2, param[1]: type: 449, name: T2, val: A23456
Stmt 2, param[2]: type: 453, name: N1, val: 333
```

4.4.3 Retries for Preparing or Upgrading a Database

Bug 14117212

In order to prepare or upgrade a database for OCI Services for Oracle Rdb, the dictionary program must get restricted access to the database. If other users are attached to the database, the prepare or upgrade will fail. With Oracle SQL/Services release 7.3.2.0, there is a mechanism to retry the attach for a defined number of retries and a defined pause between each retry.

The logical SQLNET_DIC_RETRY_COUNT defines how many times the attach is to be retried. A value of -1 means retry until success. The logical SQLNET_DIC_RETRY_PAUSE defines the number of seconds to wait between each attempt to attach. The default RETRY_PAUSE is 15 seconds, if RETRY_COUNT is defined. The default RETRY_COUNT is 10, if RETRY_PAUSE is defined. If neither logical is defined, the prepare or upgrade will fail immediately.

For example:

```
$ DEFINE SQLNET_DIC_RETRY_COUNT 10
$ DEFINE SQLNET_DIC_RETRY_PAUSE 20
$ @SYS$LIBRARY:RDB_NATCONN73 PREPARE MF_PERSONNEL
```

4.4.4 SET CONSTRAINTS Command Now Translated to Oracle Rdb Format

Bug 12714825

As part of the fix for bug 12714825, OCI Services for Oracle Rdb release 7.3.1.1 changed the internal SQL version number it returned to the client at connect time. This version number identifies the SQL dialect that OCI Services for Oracle Rdb implements. Because of this change, Oracle clients sent SET CONSTRAINT statements in a different syntax, which no longer was the same as the Rdb syntax. These statements - SET CONSTRAINTS ALL IMMEDIATE - are transformed to the Rdb syntax SET ALL CONSTRAINTS IMMEDIATE.

This enhancement has been added for OCI Services for Oracle Rdb release 7.3.1.1.

4.4.5 SYSTIMESTAMP Now Defined

Bug 11937533

Support for SYSTIMESTAMP was implemented in Oracle Rdb release 7.2.5. SYSTIMESTAMP is a timestamp datatype and will be mapped by OCI Services for Oracle Rdb to an Oracle timestamp. In order to use Oracle timestamp datatypes, the logical SQLNET_TIMESTAMP_DATE_TYPE has to be defined. In order to capture fractional seconds, the logical SQLNET_STRUCTURED_DATE_TYPES is required.

In OCI Services for Oracle Rdb releases prior to 7.3.1.1, all Rdb columns defined as date VMS were mapped to Oracle date, which does not contain fractional seconds. In release 7.3.1.1, a new logical is available which will specify that Rdb columns of date VMS datatype be mapped to Oracle timestamp, thus preserving the fractional seconds. This new logical is SQLNET_DATEVMS_IS_TIMESTAMP and it refers to all data of type date VMS, including current_timestamp and localtimestamp. When this logical is set to Y or y, Rdb columns of date VMS datatype will be mapped to Oracle timestamp. For example:

```
$ DEFINE SQLNET_DATEVMS_IS_TIMESTAMP Y
$ DEFINE SQLNET_TIMESTAMP_DATE_TYPE Y
$ DEFINE SQLNET_STRUCTURED_DATE_TYPES Y
```

This functionality can also be enabled or disabled by executing ALTER SESSION SET SQLNET_* ON/OFF commands. For example:

```
ALTER SESSION SET SQLNET_DATEVMS_IS_TIMESTAMP ON;
ALTER SESSION SET SQLNET_TIMESTAMP_DATE_TYPE ON;
ALTER SESSION SET SQLNET_STRUCTURED_DATE_TYPES ON;
```

This logical will default to OFF, if not explicitly set.

If all Rdb columns of date VMS datatype are to be mapped to Oracle timestamps for all databases accessed via OCI Services for Oracle Rdb, define system logicals. If they are to be mapped to Oracle timestamps only for specific Oracle SQL/Services services, define the logicals in the process initialization file or use the ALTER SESSION commands in the SQL initialization file for the service. If Rdb columns of date VMS datatype are to be mapped to Oracle timestamps only for specific queries, use the ALTER SESSION commands interactively.

4.4.6 RDB_NATCONN Checks If SYS\$DECDTM_NODE_NAME Logical Exists

Bug 12952108

Beginning with Oracle SQL/Services release 7.3.1.1, the RDB_NATCONN command procedure checks that the SYS\$DECDTM_NODE_NAME logical name exists on the system, in order to ensure that DECdtm has been started. When DECdtm has not been started, the following message will be displayed.

```
%SYSTEM-E-NOLOGNAM, no logical name match, SYS$DECDTM_NODE_NAME
```

4.4.7 Oracle Database Name Logged When Linked Via DBLink

Bug 6683772

When attaching to an Oracle Rdb database through a database link from an Oracle database, the Oracle database name will now be displayed in the executor log. This information will make it possible to track a connection back to the Oracle database session identifier when diagnosing problems.

The following is an example of the line that will now appear in the executor log file.

```
>>>> ORACLE DATABASE NAME: ORA102 <<<<
```

This feature is now available in OCI Services for Oracle Rdb release 7.3.1.

4.4.8 Oracle 10.2.0.4 Library Support

OCI Services for Oracle Rdb release 7.3.1 now emulates the Oracle RDBMS release 10.2.0.4 libraries and identifies itself as an Oracle RDBMS release 10.2.0.4 database to the client. This allows applications to use new features in Oracle RDBMS release 10.2.0.4. OCI Services for Oracle Rdb supports OCI client releases as supported by Oracle RDBMS release 10.2.0.4.

4.4.9 Fractional Seconds for Timestamp Data in TO_CHAR

Bug 5559859

In OCI Services for Oracle Rdb releases prior to 7.3.1, the datatype conversions used for timestamp data did not allow for fractional seconds.

The following error occurred when fractional seconds were not implemented:

```
SQL> select to_char(field_2,'dd-mon-yyyy hh24:mi:ff') from one;
select to_char(field_2,'dd-mon-yyyy hh24:mi:ff') from one
*
ERROR at line 1:
ORA-01821: date format not recognized
```

In release 7.3.1, new datatype conversions are now being used, so that fractional seconds may be returned for timestamp data.

4.4.10 ALL_OBJECTS Now Includes Indexes and Triggers

In OCI Services for Oracle Rdb release 7.3.1, the view ALL_OBJECTS now includes all indexes and all triggers.

4.4.11 New Dictionary Definitions: OBJ\$, IND\$, COL\$, and ICOL\$

In release 7.3.1 of OCI Services for Oracle Rdb, the OCI dictionary prepare/upgrade program now includes definitions for the Oracle objects OBJ\$, IND\$, COL\$, and ICOL\$.

4.4.12 Partial Support for CREATE OR REPLACE Syntax

Bug 10093056

In OCI Services for Oracle Rdb releases prior to 7.3.1, the SQL statement CREATE OR REPLACE would get an error and would not be executed. In release 7.3.1, the statement is now changed to a create statement, and execution will succeed if the object does not already exist in the database. If the object exists, an error will be returned specifying a duplicate object is being created. This is not the same behavior as for an Oracle database, but will allow successful execution of at least some of these statements.

The following shows two consecutive attempts to create or replace a table; the second statement would succeed in an Oracle database, but fails using OCI Services for Oracle Rdb.

```
SQL> create or replace table foo (c1 int);
Table created.
SQL> create or replace table foo (c1 int, c2 int);
create or replace table foo (c1 int, c2 int)
*
ERROR at line 1:
ORA-00955: name is already used by an existing object
```

4.4.13 Client Process ID Now Displayed in Executor Log for OCI Services for Oracle Rdb

ER 6683772

In order to help users track which client process is communicating with a given OCI service, the client process ID is now displayed in the executor log, beginning with release 7.3.0.3. The following is an example of the information displayed, including the client process ID. The node name, application name and client process ID are all information about the client, while the remaining information pertains to the server process.

```
---EVENT BEG: EVENT_LOG ----- Tue Apr 13 01:31:54.660 2010---
%SQLSRV-I-EVENT_LOG, event logged at line 4226 in file EXEC_SI.C;1
%SQLSRV-I-CONNECTNAME, Connect : CONNECT_0003580
%SQLSRV-I-CONNECTSTATE, Connect state: 4 (RUNNING_UNBOUND)
%SQLSRV-I-USERNAME, User name: USER1
%SQLSRV-I-NODENAME, Node : NODE1
%SQLSRV-I-APPLNAME, Application : $1$DGA227:[ORACLE.bin]SQLPLUS.EXE;1
%SQLSRV-I-CLIPROCID, Client Process ID : 2247A57F
%SQLSRV-I-SERVICENAME, Service : OCI_SVC
%SQLSRV-I-EXECNAME, Executor : OCI_SV0100001
%SQLSRV-I-EXECPID, Executor PID : 2286BEA7
---EVENT END: EVENT_LOG ----- Tue Apr 13 01:31:54.680 2010---
```

4.4.14 Performance Improvement For TO_CHAR Function When Handling Dates

In OCI Services for Oracle Rdb release 7.3.0.3, the TO_CHAR function has been modified to improve performance when handling date values.

4.4.15 DBTIMEZONE, SESSIONTIMEZONE and TZ_OFFSET Implemented

Bug 7560165

In OCI Services for Oracle Rdb release 7.3.0.3, the functions DBTIMEZONE, SESSIONTIMEZONE, and TZ_OFFSET were added to the Oracle dictionary metadata. Columns named DBTIMEZONE and SESSIONTIMEZONE were added to table DUAL. They are populated by ORA_LOGIN2 at logon time, from info in logical SYS\$TIMEZONE_DIFFERENTIAL. Functions dbtimezone and sessiontimezone were added by selecting from the appropriate column in DUAL.

TZ_OFFSET was also partially implemented. It will only return valid values if the input is 'dbtimezone', 'sessiontimezone', or a valid timezone offset (format +HH:MM or -HH:MM).

The following SQL queries will return valid data:

```
select dbtimezone from dual;
select sessiontimezone from dual;
select dbtimezone() from <any_table>;
select sessiontimezone() from <any_table>;
```

The following will NOT get valid data, but will get FLDNOTCRS error, saying that the column doesn't exist:

```
select dbtimezone from <any_table_except_dual>;
select sessiontimezone from <any_table_except_dual>;
```

ALTER SESSION SET TIME_ZONE will not work. To change the time zone, do an update to table DUAL.

```
update DUAL set SESSIONTIMEZONE = '<new_offset>';
```

4.4.16 TO_TIMESTAMP Function Implemented

Bug 3937912

A new function, TO_TIMESTAMP, was implemented in OCI Services for Oracle Rdb release 7.3.0.3. TO_TIMESTAMP returns a timestamp value from the given arguments. It provides the same functionality as the Oracle function TO_TIMESTAMP, and it takes the same input arguments and returns the same result.

The logical SQLNET_TIMESTAMP_DATE_TYPE must be defined as "Y" or "y" in order to receive timestamp data from a TO_TIMESTAMP function call. Only the date portion will be returned if the logical is undefined or is defined as anything else.

Function: TO_TIMESTAMP(char(,fmt)(,nlsparam))

The following is a description from the Oracle documentation:

TO_TIMESTAMP converts *char* of CHAR, VARCHAR2, NCHAR, or NVARCHAR2 datatype to a value of TIMESTAMP datatype.

The optional *fmt* specifies the format of *char*. If you omit *fmt*, then *char* must be in the default format of the TIMESTAMP datatype, which is determined by the NLS_TIMESTAMP_FORMAT initialization parameter. The optional *nlsparam* argument has the same purpose in this function as in the TO_CHAR function for date conversion.

The *nlsparam* argument specifies the language in which month and day names and abbreviations are returned. This argument can have this form:

```
'NLS_DATE_LANGUAGE = language'
```

4.4.17 V\$PARAMETER Table Support Enhanced

Bug 9684494

In OCI Services for Oracle Rdb release 7.3.0.3, the view V\$PARAMETER has been dropped, and a new global temporary table V\$PARAMETER has been created in its place. The table includes a row defining the Oracle compatible release number. For this release, the compatible release number is 10.2.0.2.0. It also includes a row for each of the NLS parameters and what its current value is. This change was made in response to an issue raised in the referenced bug, but it is not the fix for the bug.

4.4.18 OCI Services for Oracle Rdb Server Configuration Test Tool

Bug 775583

A new tool has been added to OCI Services for Oracle Rdb release 7.3.0.2 to test that the OCI Services for Oracle Rdb server configuration has been correctly set up. This tool can be used to validate the set up, once the system has been configured. Details on using this tool can be found in the Oracle SQL/Services Server Configuration Guide.

4.4.19 Statistics Now Returned for Selects Using a DBLINK

Bug 6966070

In OCI Services for Oracle Rdb releases prior to 7.3.0.2, statistics were not being returned when an Oracle server requested them through a dblink connection. This often resulted in decreased performance and non-optimal choice of strategy for the query by the Oracle optimizer. Many statistics and counts that are easily available in the Oracle Rdb database are now returned in release 7.3.0.2 and later. This includes information on tables, columns, and indexes. In the test cases, this information allowed the Oracle optimizer to choose better strategies for slow queries and they were significantly faster. Work in this area will be ongoing, as more relevant statistics are identified and available in Oracle Rdb.

4.4.20 Optimized Memory Use in OCI Executor When Using a DBLINK

Bug 7301874

Memory that was allocated by the Oracle Net routines via a callback into the OCI executor was not being released until the end of the session. It appeared to be a memory leak for a long-running session. In OCI Services for Oracle Rdb release 7.3.0.2, this memory is now being allocated in a memory group that is released at the end of each OCI call, so it is not accumulating through a long-running session.

4.4.21 Unique Bind Variable Names

When a query was "fixed up" by the OCI executor because of datatype conversion errors, literals were sometimes replaced by bind variables which could all have the same name. In OCI Services for Oracle Rdb release 7.3.0.2, the OCI "fixup" code was changed to generate bind variables with unique names.

4.4.22 Dictionary Enhancements

Bugs 7559798 and 8464682

In OCI Services for Oracle Rdb release 7.3.0.2, several enhancements were made to the Oracle metadata created by the dictionary prepare and upgrade program. The ALL_USERS view now selects data from the USER\$ table, since all users must be entered into the USER\$ table. Columns in views that were selecting a NULL value required a datatype for those columns. The NULL values were changed to CAST to the appropriate datatype. Some of the views containing columns that were TRIMmed were modified to be more efficient.

The domains RDB1LONG, RDB2LONG, and RDB4LONG will no longer be created as part of a database prepare. Those domains will not be deleted from databases prepared via an older release, but they will not be created in OCI Services for Oracle Rdb release 7.3.0.2 and future releases.

4.4.23 Enhanced OCI Executor Logging

In OCI Services for Oracle Rdb release 7.3.0.1, there have been several additions to OCI executor logging, including new logging flags. For details, see Section 7.3.4 in the Oracle SQL/Services Server Configuration Guide.

4.4.24 Enhanced Index Statistics for OCI Describe Index

OCI Services for Oracle Rdb release 7.3.0.1 has been enhanced to provide more accurate index statistics in response to the OCI call to describe indexes. Also, more column and index statistics will be returned on Itanium.

4.4.25 Oracle Metadata Updated

Bugs 6836602 and 6860836

Further changes were made to the Oracle metadata created by the dictionary prepare and upgrade program, RDB\$NATCONN_DICnn, in OCI Services for Oracle Rdb release 7.3.0.1. Columns in some existing tables were changed, and some new tables and views were created to reflect the Oracle 10gR2 metadata.

4.4.26 Oracle 10gR2 Library Support

OCI Services for Oracle Rdb release 7.3 now emulates the Oracle RDBMS release 10gR2 libraries and identifies itself as an Oracle RDBMS release 10gR2 database to the client. This allows applications to use new features in Oracle RDBMS release 10gR2. OCI Services for Oracle Rdb supports OCI client releases as supported by Oracle RDBMS release 10gR2.

4.4.27 Performance Improvement on OpenVMS I64 Platform

On the OpenVMS I64 platform, OCI Services for Oracle Rdb release 7.3 now uses native Oracle RDBMS 10gR2 libraries. In 7.2 releases, OCI Services for Oracle Rdb used a translated SQLSRV_SQLNETSHR image. Performance has been significantly enhanced using the native image.

4.4.28 Oracle Metadata Updated

In OCI Services for Oracle Rdb release 7.3, the Oracle metadata created by the dictionary prepare and upgrade program, RDB\$NATCONN_DICnn, has been updated to reflect changes to the tables and views in Oracle 10gR2. Some columns have been altered to a different datatype or a different varying character length. Some columns have been deleted and some new columns have been added. A few new tables or views have been added that were required by Oracle Explorer and/or Oracle Discoverer.

4.4.29 VMS Mixed Case Passwords Supported

ER 5916102

In prior releases of Oracle SQL/Services and OCI Services for Oracle Rdb, using mixed case passwords would fail even when the OpenVMS /FLAGS=PwdMix flag was specified for the user in the system authorization file (UAF).

Support for this OpenVMS version 7.3-2 feature has now been included in Oracle SQL/Services and OCI Services for Oracle Rdb release 7.2.0.2.

Support for this feature has also been included in Oracle Rdb release 7.2.1.2. Oracle SQL/Services and OCI Services for Oracle Rdb requires that this or a subsequent release of Oracle Rdb be installed in order to take advantage of this feature. The feature is implemented in a version independent image for Oracle Rdb. Therefore, the feature can be used in Oracle SQL/Services and OCI Services for Oracle Rdb executing against a prior Oracle Rdb 7.0 or 7.1 release, as long as the required Oracle Rdb release has been installed on the system.

Refer to OpenVMS version 7.3-2 documentation for more information on the Authorize Utility PwdMix flag for user accounts.

4.4.30 New NLS Parameters

The following NLS parameters were added in OCI Services for Oracle Rdb release 7.2.0.1: NLS_COMP, NLS_LENGTH_SEMANTICS, and NLS_NCHAR_CONV_EXCP. They will be initialized to default values in V\$NLS_PARAMETERS at connection time. The values are as follows: NLS_COMP is set to BINARY, NLS_LENGTH_SEMANTICS to BYTE, and NLS_NCHAR_CONV_EXCP to FALSE.

4.4.31 Greater Precision in Timestamp for Logging

Beginning with OCI Services for Oracle Rdb release 7.2.0.1, if you define the logical SQLNET_DEBUG_FLAGS to be HT, the resulting timestamp will show two decimal places of microseconds. The timestamp will be of the following format: YYYY-MM-DD HH:MM:SS.mm.

4.4.32 Data Dictionary Support for Oracle 10g Applications

In OCI Services for Oracle Rdb release 7.2.0.1, the RDB_NATCONNnn.COM database prepare and upgrade functions were enhanced to add several new tables and views, to comply with Oracle 10g.

4.4.33 Table and View Changes to Comply with Oracle 10g

Beginning with OCI Services for Oracle Rdb release 7.2.0.1, if a user does a "select * from v\$version" statement, or an OCI Version call, the first row returned has been changed to contain the Oracle compatible version information, to comply with Oracle 10g. New default information was included in the views ALL_TABLES and ALL_TAB_COLUMNS. A new view ALL_REFS is created with no rows, and a new table SYSTEM_PRIVILEGE_MAP is created containing several privilege definitions that map to functionality allowed by Oracle Rdb. This table is not used by OCI Services for Oracle Rdb or by Oracle Rdb, and the entries do not imply any privileges granted or available.

4.4.34 Changes for Oracle JDBC Release 10.2 Thin Driver

Bug 5064467

A Java application that uses the Oracle JDBC release 10.2 thin driver to access an Rdb database through the OCI interface would get a "/" by zero" Java exception during the following method call.

```
.prepareStatement( )
```

OCI Services for Oracle Rdb release 7.2.0.1 has been enhanced to support the modified OCI calls used by the Oracle JDBC release 10.2 thin driver.

4.4.35 New Datatype: New Formats for Oracle Rowids

Some newer versions of Oracle clients use a new format for sending and receiving rowids and dbkeys. This new format, DTYRDD in Oracle datatype descriptions, is implemented as needed, depending on the version of the client. This feature was made available in OCI Services for Oracle Rdb releases 7.1.6.1 and 7.2.0.1.

4.4.36 Security Enhancements OCI clients

Because of security inconsistencies and problems preparing databases with defined default collating sequences, there have been many changes to the Prepare and Upgrade functions in OCI Services for Oracle Rdb release 7.1.6.1 and 7.2.0.1. There are many new domains named ORA_VCn, and many tables and views are redefined to use these domains. Also, privilege checking will be done by the stored procedures ORA_CREATE_USER and ORA_DROP_USER, so the security requirements are the same whether you use RDB_NATCONNnn.COM or invoke the stored procedures directly. You can add or drop your own username in the database without any privileges, but you must have BYPASS, SECURITY, or SYSPRV privilege to add or drop another user.

4.4.37 OCI Services for Oracle Rdb Available on OpenVMS I64

OCI Services for Oracle Rdb release 7.2 is available for the HP OpenVMS Industry Standard 64 for Integrity Servers operating system.

4.5 Software Errors Fixed in Previous OCI Services for Oracle Rdb Releases

This section highlights software errors fixed in previous OCI Services for Oracle Rdb releases.

4.5.1 ALTER SESSION REMOTE_DEPENDENCIES Setting Now Accepted

Bug 16954563

Starting with OCI Services for Oracle Rdb release 7.3.2.0, the setting of REMOTE_DEPENDENCIES_MODE in an ALTER SESSION command will now be ignored and not reported as an error. Any value may be specified as the new setting and it will be ignored. A status of success for the ALTER SESSION command is returned, although no action is taken.

4.5.2 Insert Returning into a Variable

Bug 13515112

Beginning with OCI Services for Oracle Rdb release 7.3.2.0, a SQL insert statement including a 'returning' clause will now return the correct value into the specified variable, EXCEPT in the case where the variable is used as both an input and an output parameter. In that case, the value will NOT be returned into the variable and no error will be returned. Errors can be seen in the executor log, but are not visible to the client application.

The following are examples of statements that work correctly:

```
insert into tab1 (id,name) values (:id,:nm) returning id into :ii;
insert into tab1 (id,name) values (:ii,:name) returning name into :nm;
```

Following are examples of statements that do not return the correct values:

```
insert into tab1 (id,name) values (:id,:nm) returning id into :id;
insert into tab1 (id,name) values (:id,:nm) returning name into :nm;
```

4.5.3 Unexpected Read Only Transaction Error

Bug 17176647

In OCI Services for Oracle Rdb releases prior to 7.3.2.0, if the SQL initialization file for an OCI service contained the statement "alter session set schema emulation strict" or "alter session set schema emulation relaxed", it would cause the OCI service to set the service connection to the database as read only, and any statement causing a change to the database would be rejected as invalid in a read only transaction. Executing the same statement after session initialization time did not cause the read only behavior. For release 7.3.2.0 and later, the alter session statement can now be executed in the SQL initialization file or at any time during the session and will not cause the read only behavior.

The default for schema emulation is "strict", so it is not necessary to alter the session to set strict emulation. Relaxed emulation can be set in the SQL initialization file and will not cause the read only behavior; or it can be set at any time during the session.

4.5.4 Privileges Needed for RDB_NATCONN Commands Documented

Bug 12952108

A user executing the RDB_NATCONN73.COM PREPARE, UPGRADE, or DROP operations must have the VMS SYSPRV, IMPERSONATE, or BYPASS privilege in their account's current process settings.

The release 7.3.1.1 Oracle SQL/Services Server Configuration Guide has been updated to include this information.

4.5.5 SQL-F-BAD_TXN_STATE On Connect Via OCI Services for Oracle Rdb

Bug 12420900

Using OCI Services for Oracle Rdb releases prior to 7.3.1.1, if certain errors happened at connection time, the service was left with a transaction started so the next connection attempt would result in the following error:

SQL*Plus: Release 10.2.0.4.0 - Production on Tue May 3 06:39:16 2011

Copyright (c) 1982, 2007, Oracle. All Rights Reserved.

ERROR:

ORA-32800: internal error [No corresponding Oracle message for Rdb error]
%SQL-F-BAD_TXN_STATE, Invalid transaction state. Transaction already started.

It seems the first error is leaving the executor in a bad state.

This problem has been fixed in OCI Services for Oracle Rdb release 7.3.1.1.

4.5.6 Prefetching Does Not Work With OCI Services for Oracle Rdb

Bug 12434781

With OCI Services for Oracle Rdb releases prior to 7.3.1.1, only one row was being returned in the first response to a query, even if the client specified a number of rows to prefetch. This problem can be verified by turning on Level 16 tracing in SQLNET.ORA and examining the packets being returned.

The correct number of rows will now be prefetched, if specified by the client.

This problem has been fixed in OCI Services for Oracle Rdb release 7.3.1.1.

4.5.7 TO_CHAR With DATE VMS Data With Time 0 Gets ORA-01821 Error

Bug 12620520

In OCI Services for Oracle Rdb releases prior to 7.3.1.1, when using TO_CHAR on a column defined as DATE VMS but which contains all zeroes in the time portion, the Oracle error ORA-01821 was being returned. The TO_CHAR code assumed that DATE VMS data with all zeroes in the time portion was a date and not a timestamp. If the format included the time fields, it rejected the format as

invalid for a datatype of DATE. The code now allows for the time portion to be all zeroes if a format is provided.

This problem has been fixed in OCI Services for Oracle Rdb release 7.3.1.1.

4.5.8 Cannot Use TO_TIMESTAMP in Insert or Update Statement Over a DBLINK

Bug 12714825

For OCI Services for Oracle Rdb releases prior to 7.3.1.1, using TO_TIMESTAMP in the values clause of an insert or update over a dblink caused the error:

ORA-02070: database <> does not support TO_TIMESTAMP in this context

The problem was the SQL version returned at connect time made Oracle client think OCI Services for Oracle Rdb could not support this. Updating the SQL version to use MY_VSNSQL will keep the SQL version current, and it fixed this problem.

This problem has been fixed for OCI Services for Oracle Rdb release 7.3.1.1.

4.5.9 OCI Universal Service Returns ORA-900

Bug 13343401

Any attempt to connect to a universal service that didn't have a SQL initialization file resulted in the error ORA-900 being returned to the client, in OCI Services for Oracle Rdb releases prior to 7.3.1.1. Defining a SQL init file caused the error not to occur, even if the file was empty.

This problem has been fixed for OCI Services for Oracle Rdb release 7.3.1.1.

4.5.10 OCIStmtExecute Returns ORA-03106

Bug 12715330

An OCI program that called OCIStmtExecute with OCI_DESCRIBE_ONLY got an ORA-03106 error on the subsequent OCIStmtExecute made to execute the statement. The same program worked when used against an Oracle 10.2.0.4 database, or if the call with OCI_DESCRIBE_ONLY was not done.

The error was related to returning the null indicator and/or column return codes, so a possible workaround was to not send a null indicator or return code specifier in the request.

This problem has been fixed for OCI Services for Oracle Rdb release 7.3.1.1.

4.5.11 Errors Retrieving Segmented String Data

In certain circumstances, errors were encountered when retrieving data from a segmented string if the table contained more than one segmented string column.

This problem has been corrected in OCI Services for Oracle Rdb release 7.3.1.1.

4.5.12 Problems Fixed for RDB\$NATCONN_CHECK_SETUP.COM

Bugs 12412209 & 12546935

When testing the server environment with OCI Services for Oracle Rdb releases prior to 7.3.1.1, RDB\$NATCONN_CHECK_SETUP.COM did not provide a default extension for the database name, so lookups for database names failed unless the ".RDB" extension was provided. Also, searching for a given service name failed, if the TNSNAMES.ORA entry used the SERVICE_NAME keyword, rather than the SERVICE or SID keywords.

These problems have been resolved in OCI Services for Oracle Rdb release 7.3.1.1.

4.5.13 Message Warning That SQL Functions Not Installed

Bug 9710330

SQL functions are optional, but recommended in a database that is prepared for OCI Services. In OCI Services for Oracle Rdb release 7.3.1, when a database is being prepared, and the SQL functions have not been installed, a message is output to the terminal advising that the SQL functions are not installed and specifying their location so they can be installed easily.

The following is an example of the message displayed when a database has not been prepared.

```
$ sql create database filenamenofunc
$ dic preparenofunc
**** Preparing databasenofunc ****
WARNING: SQL functions are not defined in this database.
They are recommended but not required for OCI Services.
Install if desired from SYS$LIBRARY:SQL_FUNCTIONSnn.SQL.
**** Preparing database successfully completed ****
```

4.5.14 Message in Executor Log if Database Not Prepared

Bug 9734494

The error message that was returned at connect time if the database had not been prepared implied a network problem rather than a database one. In OCI Services for Oracle Rdb release 7.3.1, the error message was changed to return the error ORA-00942 and a message is now being written to the executor log that the error may have occurred because the database has not been prepared.

The following is an example of SQL*Plus connecting to an unprepared database using OCI Services for Oracle Rdb release 7.3.1:

```
$ sqlplus user1/user1@rdb_service
SQL*Plus: Release 10.2.0.4.0 - Production on Mon Mar 14 13:59:22 2011
Copyright (c) 1982, 2007, Oracle. All Rights Reserved.
ERROR:
ORA-00942: table or view does not exist
$ exit
```

The following is an excerpt from the executor log:

```
gta.gtagetpsw: Error calling ORA_GETSYI; database likely not prepared
gtolon.gtol3a: (gtagetpsw) exit status=942
gtwdre.gtwdre: Oracle error 942 for function 118, OSes
GTWDRE exit; err = 942
```

4.5.15 Data Not Being Returned to a Business Objects Application

Bug 9795659

In OCI Services for Oracle Rdb releases prior to 7.3.1, in certain circumstances, the column defines were not being done and no data was returned to the client for a select statement.

This problem has been fixed for release 7.3.1.

4.5.16 Version Data Now Sized to Buffer

Bug 9920234

In OCI Services for Oracle Rdb releases prior to 7.3.1, if the buffer passed in to the version call was not big enough to contain the entire version string, the call failed and no data was returned. In release 7.3.1, if the buffer is too short, it is filled with as much version information as will fit.

4.5.17 Memory Leak Removed

Bug 8740028

In OCI Services for Oracle Rdb releases prior to 7.3.1, a small amount of memory was not being released for each connection made and terminated. Clients that made a large number of connections would see a memory leak and might eventually deplete memory resources.

As of release 7.3.1, all memory is now being released at the termination of a connection.

4.5.18 Error with Literals in a Date Format String

Bug 9975328

The error ORA-12705 was returned if a literal was specified as part of a date format string, with OCI Services for Oracle Rdb releases prior to 7.3.1. The error was caused by the incorrect use of single and double quotes in the stored procedure V\$NLS_SET_FUNC.

The following SQL*Plus example shows the error that was returned when literals were used in a date format string:

```
SQL> ALTER SESSION SET NLS_DATE_FORMAT = 'RRRR-MM-DD\"T\"HH24:MI:SS';
ERROR:
ORA-12705: Cannot access NLS data files or invalid environment specified
```

In release 7.3.1, this procedure has been changed to allow the use of literals in a date or time format string.

4.5.19 RDB\$NATCONN Gets RMS-E-PRV Error for Privileged User

Bug 8917302

In releases prior to OCI Services for Oracle Rdb release 7.3.0.3, if a user had SYSPRV, BYPASS, or SECURITY as an authorized privilege, the RDB\$NATCONN command procedure's ADD_USER and MODIFY_USER commands would assume that they also had the privilege as a currently enabled privilege. If the privilege was not enabled, the command would fail with the following error.

-RMS-E-PRV, insufficient privilege or file protection violation

This problem has been corrected in release 7.3.0.3. These commands will now correctly check if the user has the privileges enabled before attempting to make the update.

4.5.20 Bugchecks in OCI Services for Oracle Rdb

Bug 9316689

Bugchecks would sometimes occur while using an OCI service. There was no specific command or operation that could be attributed to the bugchecks. The bugcheck footprint looked like the following:

```
4-SEP-2009 11:23:56.45: Linked SQLSRV_UTLSHR73 (SQS_BUILD) SQS$ALPHA:[UTL]
%OCI-F-BUGCHECK: in SQS$SRC_73:[UTL]UTL_BUGCHECK.C;1 at line 961
HARD EXCEPTION ENCOUNTERED: 0000000C

%SYSTEM-F-ACCVIO, access violation, reason mask=00, virtual
address=000000004CF8000, PC=000000000D5B064, PS=0000001B
%OCI-F-RECBUGCHECK: bugcheck called while in bugcheck
%OCI-F-BUGCHECK: in NATCONN$SRC73:[CODE]GTWTSK.C;1 at line 604 GTWTSK: exception
'status: 12'
```

This problem has been corrected in OCI Services for Oracle Rdb release 7.3.0.3.

4.5.21 Execution of Remote Functions Implemented

Bug 8628164

The execution of remote functions had only been partially implemented. The remaining functionality was implemented. SQL statements of the type

```
select function@dblink_to_rdb(arguments) from table
```

now will execute correctly. Remote functions through a dblink to an Rdb database can now be executed in any place a function is allowed in a SQL statement.

This functionality is available in OCI Services for Oracle Rdb release 7.3.0.3.

4.5.22 Bugcheck With Select For Update

Bug 9006914

In certain circumstances when a 'select for update' statement was executed, OCI Services for Oracle Rdb would think there were more than 65000 columns in the statement and would bugcheck with an access violation.

This problem has been corrected in OCI Services for Oracle Rdb release 7.3.0.3.

4.5.23 Two Task Error ORA-3106 Using Cursors

Bug 9027855

When a series of cursors were defined and retained for re-execution, in some circumstances the wrong cursor number would be closed and then reused, causing two-task protocol error, Oracle error number ORA-3106.

This problem has been corrected in OCI Services for Oracle Rdb release 7.3.0.3.

4.5.24 Slow Execution of a Query With an Outer Join

Bug 8811747

A query using outer joins on three Rdb tables accessed using DB links and OCI Services for Oracle Rdb was not passed through to Rdb unchanged, but was broken up into three separate remote queries and joined locally. This caused performance of the query to be slower than expected.

In OCI Services for Oracle Rdb release 7.3.0.3, the SQL capability "OUTER JOIN" was added to the SQL_CAPABILITY table, which notified the Oracle optimizer that Rdb through OCI Services can execute outer joins, so the query can now be sent directly to Rdb as a single SQL statement.

4.5.25 Security Change

A security change was made in OCI Services for Oracle Rdb release 7.3.0.2 to make connect user authorization more secure.

4.5.26 Unable to Use Floating Point Parameters With Comma as Decimal Separator

Bug 7379066

Using OCI calls to insert a floating point variable into an Rdb database would result in the following error when the NLS_LANG was set to a language, such as GERMAN_GERMANY.WE8MSWIN1252, where a comma is defined as the decimal separator.

ORA-01438: value larger than specified precision allowed for this column

The problem with bind variables containing a comma as the decimal separator has been corrected in OCI Services for Oracle Rdb release 7.3.0.2.

Using a comma as the decimal separator within a SQL statement is not allowed. This is a restriction of Oracle Rdb. The workaround is to simply use a decimal point instead of a comma.

4.5.27 Wrong Data Returned by TO_CHAR Function

Bug 7645510

In some cases where the results of a TO_CHAR function were returned into a variable, the data was defined as RAW rather than as character data. This would cause it to be displayed as hex ascii rather than as a character string. In order to accommodate different languages and character sets, the Oracle data dictionary program defines all character set data as CHARACTER SET UNSPECIFIED. This allows the use of different character sets, but it makes it difficult to distinguish between character set data and raw data. For release OCI Services for Oracle Rdb 7.3.0.2 and later, data will be described as characters rather than raw; in a future release, the use of a universal character set such as UTF8 will be investigated in place of character set unspecified.

4.5.28 Invalid Transaction State After DESCRIBE of Non-existent Object Using Dblink

Bug 8862447

Using a dblink and doing a DESCRIBE of an object which does not exist would cause the transaction state to become invalid. The correct error message would appear, that the object does not exist, but any further accesses to the database would not succeed. In some cases, the error RDB-E-BAD_TXN_STATE would be returned, and in other cases, the service would hang until the transaction timed out.

This problem has been fixed in OCI Services for Oracle Rdb release 7.3.0.2.

4.5.29 RDB\$NATCONNnn.COM Did Not Check if Database Had Been Upgraded

Bug 6335504

If a database had been prepared by a prior release of RDB_NATCONN.COM, and an attempt was made to add a user using RDB_NATCONN.COM from a subsequent release, the user was not added and no error was displayed. The problem occurred because the database had not been upgraded with the correct data dictionary level expected by RDB_NATCONN.COM.

This problem has been corrected in OCI Services for Oracle Rdb release 7.3.0.1. The following error will now be displayed when this condition occurs.

```
% REASON, - version mismatch; database not prepared for this release
```

4.5.30 OCI Bugchecks With Oracle 10GR2 Clients Doing ClientID Propagation

Bug 6864692

With OCI Services for Oracle Rdb release 7.3, applications that do ClientID propagation would sometimes get an OCI bugcheck with an access violation reported at the following location.

```
Saved PC = 00081DB0 : RDB$NATCONN73\gtocli
Module GTOVER + 00000060; line 395581
```

A full executor log contained the following information prior to the bugcheck.

```
GTWDRE Type: 135 argc: 19, gtwpis: 7ad05970, crs: 0
gtwdre.gtwdre: Function.....: ClientID Propagation
gtover.gtocli: entry
%OCI-F-BUGCHECK: bugcheck dump will be written to ...
```

This problem has been corrected in OCI Services for Oracle Rdb release 7.3.0.1.

4.5.31 Check for Error on Grant All in Metadata Program

Bug 6743840

In prior releases, no check was made for errors on the "GRANT ALL ... to SQLNET4RDB" statement in the dictionary prepare and upgrade program, RDB\$NATCONN_DICnn. In cases where the statement failed, users would not be notified of the failure and would not know until a service tried to access the database and got a privilege error.

This problem has been corrected in OCI Services for Oracle Rdb release 7.3.0.1.

4.5.32 ORA-3106 Error Using PL/SQL Package Through a Dblink

Bug 5941427

Some information required by the client in the completion message for the execution of a procedure was missing. This information has been added to the message.

This problem has been corrected in OCI Services for Oracle Rdb release 7.3.0.1.

4.5.33 SQL_SYNTAX_ERR or SQL_CORNAMREQ Errors

Bug 6502017

In certain cases, SQL select statements that needed to have correlation names added because of syntax differences between Rdb SQL and Oracle SQL were not being correctly fixed up and the correlation names were not added correctly. An instance of this error was seen in a query from SQL Developer.

This problem has been fixed for release 7.3.

4.5.34 Error Accessing PRODUCT_USER_PROFILE

Bug 6641823

In very rare cases, adding a user to the USERS table could cause the following error to be displayed in the executor log:

```
Error accessing PRODUCT_USER_PROFILE
Warning: Product user profile information not loaded!
You may need to run PUPBLD.SQL as SYSTEM
```

This would cause a dblink connection to fail, but a non-dblink connection would continue successfully.

This problem has been fixed for release 7.3.

4.5.35 Error in ORASTATE Returning State

A case was found where ORASTATE could not determine the correct state to return. This was caused by the fact that the error number was outside the range that ORASTATE expected.

This problem has been corrected for release 7.3.

4.5.36 Max Cursors Exceeded

Bug 5971390

In the beta releases of 7.3, Forms applications could see this error:

ORA-01000: MAXIMUM OPEN CURSORS EXCEEDED

This could happen even if the Forms application was not being used.

This problem has been fixed for release 7.3.

4.5.37 Data Not Retrieved in Reports 10gR2

Bug 5970246

When using Reports 10gR2, a report appeared to run successfully, but no data was returned from OCI Services for Oracle Rdb. This was caused by a change in the way null indicators and column error codes are returned from the database.

This problem has been fixed for releases 7.2.0.2 and 7.3.

4.5.38 Improved OCI Services for Oracle Rdb Executor Logging Disk I/O Performance

Bug 5996179, 1744912

With prior releases of OCI Services for Oracle Rdb, when executor logging was enabled, queries were running significantly slower, due to excessive disk I/O.

In OCI Services for Oracle Rdb release 7.2.0.2, the flushing of executor log buffers has been enhanced, resulting in major disk I/O performance improvements.

4.5.39 FORMS Fail With Rowid Truncation Error

Bug 5726783

The datatype for rowids was inappropriately reported as an internal datatype, which caused it to be retrieved and displayed in the wrong format:

```
SQL> select rowid from odual;
ROWID
-----
?AAAAAAAAADQRAIBvAAAA
```

With the correction, the rowid will be retrieved in the correct format:

```
SQL> select rowid from odual;
ROWID
-----
80000ECF.005E.0000
```

This problem has been corrected in Oracle SQL/Services release 7.2.0.2.

4.5.40 SELECT INTO Getting Invalid ORA-1403 Errors

Bug 6134494

Starting with releases 7.1.6.2 and 7.2.0.1.1, SQL statements of the form

```
SELECT column_list INTO variable_list ...
```

were executed rather than opening a cursor and fetching the single row. If the select statement was prepared and then executed, the first execution would retrieve the correct data. A second execution would not retrieve any data, but would return the 'no data found' message.

This problem has been corrected in Oracle SQL/Services release 7.2.0.2.

4.5.41 Triggers Added to USER\$

Bug 5574125

In OCI Services for Oracle Rdb release 7.2.0.2, the security checking for the USER\$ table is now done by triggers on the table itself. The triggers provide the same security level previously implemented in RDB\$NATCONN_CUPP. That is, a user without SYSPRIV, BYPASS, or SECURITY system privileges can only add, update, or delete himself; users with one or more of those privileges can add, update, or delete other users as well as themselves.

4.5.42 Rows in ORA_COMM_TRANS Not Deleted

Bug 5916220

The ORA_COMM_TRANS table is used when the client is a dblink or when an application requires 2-phase commit and the XA Gateway is not available. Rows in that table were not getting deleted when the transaction ended, but were remaining in the table eventually causing disk space failures. This problem has been corrected for OCI Services for Oracle Rdb release 7.2.0.2.

Oracle recommends that the XA Gateway be installed and used whenever 2-phase commit is desired.

4.5.43 Create User RDB_SCHEMA Fails

Bug 5968777

When upgrading a database from any version to OCI Services for Oracle Rdb release 7.2.0.1, users would see the following error:

```
Unable to execute CREATE USER RDB_SCHEMA IDENTIFIED EXTERNALLY.
```

The upgrade would complete successfully, and report the successful completion, but the error caused some users to be apprehensive about the actual success.

Beginning with release 7.2.0.2, the RDB_SCHEMA "user" name is added by OCI Services for Oracle Rdb, and the upgrade no longer tries to execute a CREATE USER for that user name, so the error no longer happens.

4.5.44 Form With Scroll Region Fails

Bug 5948378

When using Forms5, users were seeing errors ORA-3121 and FRM-40735 when using a form with a scroll region. This was caused by OCI Services for Oracle Rdb not recognizing when a new bind variable was being sent.

This problem has been fixed for release OCI Services for Oracle Rdb 7.2.0.2.

4.5.45 Error Message NOLOGNAM at Start Transaction

Bug 5231659

With the latest releases of OCI Services for Oracle Rdb, if DECDtm is not installed, users see the error message, "%SYSTEM-F-NOLOGNAM, no logical name match". This happens because OCI Services for Oracle Rdb is now built as a distributed transaction application, and a DECDtm distributed transaction is started by default.

In release 7.2.0.2, the OCI Services for Oracle Rdb log now has an explanation for this error and a recommendation for how to fix it. Documentation will specify that the logical SYS\$DECCTM_NODE_NAME must be defined; the value of the logical is ignored.

4.5.46 Problem Describing Column With Name Longer Than 30 Characters

Bug 5632639

Describing a table in SQL*Plus with a column whose name was longer than 30 characters would display an ORA-03113 error and the following error was logged in the OCI executor log file.

```
Assertion failed: "find_mblock(current_mgroup, mblock) == current_mgroup
```

This problem has been corrected in OCI Services for Oracle Rdb release 7.2.0.1. The following error is now correctly displayed in SQL*Plus.

```
ORA-00972: identifier is too long
```

4.5.47 Modified Transaction Control to Better Fit XA Model

With the addition of support for XA 2pc transactions in release 7.1.6, OCI Services for Oracle Rdb and Oracle SQL/Services sometimes have a need to mix 2pc and non-2pc transactions. In some cases, these transactions could potentially collide, leading to problems. Transaction control has now been modified to avoid such problems.

One example is when a severe error occurs causing Oracle SQL/Services to shut down an OCI executor. In some cases, a database recovery could still be in progress when the Oracle SQL/Services shut down occurs. Oracle SQL/Services would attempt to rollback and disconnect from the database, causing a bugcheck dump because the database was still locked by the recovery process.

Oracle SQL/Services and OCI Services for Oracle Rdb has been modified in release 7.2.0.1 to correct these problems.

4.5.48 ADD_USER Failed When Database Default Character Set Was ISOLATINGREEK

Bug 5333023

The ADD_USER function, invoked via SYSSLIBRARY:RDB_NATCONNnn.COM, failed when a database had a default character set of ISOLATINGREEK or any character set other than the default DEC_MCS.

The error displayed was:

Reason, - no privilege to perform operation on database <db_name>

But, the actual problem was:

SQL-E-INCCSASS, Incompatible character set assignment between ...

This problem has been corrected in OCI Services for Oracle Rdb release 7.2.0.1.

4.5.49 SELECT INTO Commands Are Stripped of INTO When Passed to Rdb

Bug 5253380

The INTO clause of a SELECT ... INTO SQL statement was being removed by OCI Services for Oracle Rdb before passing the statement to Rdb. This caused the statement to be processed by opening a cursor, fetching the row, and closing the cursor, rather than just executing the SELECT INTO statement. This caused execution of the statement to be unacceptably slow.

This problem has been corrected in OCI Services for Oracle Rdb release 7.2.0.1.

4.5.50 ADD_USER Command Does Not Work for Non-Privileged Users

Bug 5264258

In OCI Services for Oracle Rdb release 7.2, it was documented that users without privileges can add or update their own user name and password information in the USERS table of a database prepared for OCI Services for Oracle Rdb. The RDB_NATCONNnn.COM utility appeared to have completed with no error, but the user name or password was not added or updated.

This problem has been fixed in OCI Services for Oracle Rdb release 7.2.0.1. Non-privileged users can now add, remove, and update their own user name and password information using the utility in SYSSLIBRARY:RDB_NATCONNnn. Because these fixes have a new version of the dictionary stored procedures, you must perform an UPGRADE operation on the OCI Services for Oracle Rdb database.

For customers who are calling these stored procedures directly from a SQL script or an application with embedded SQL, the last argument (:ret_val) is no longer required and should be removed. Beginning with release 7.2.0.1, the call status is returned via the SQLCA.SQLCODE and SQLSTATE variables. All programs should test the return value for errors. A (-1042) SQLCA.SQLCODE and an "O1031" SQLSTATE string indicate that a non-privileged user is trying to make changes for another user. The following example is an excerpt from a .SC application:

```

char SQLSTATE(6);
/* Call the stored procedure ORA_CREATE_USER to add/change user/pwd.*/
EXEC SQL CALL ORA_CREATE_USER(:name, :pass);
/* Check the return status from the ora_user_password call. */
if ((SQLCA.SQLCODE == -1042) && (strcmp(SQLSTATE, "01031") == 0))
status = CUPP$_E_NOPRIV; /* failure to change different user w/o privs. */

```

4.5.51 Queries With TO_NUMBER() Function Calls Are Slow

Bug 5027052

Some complex queries that contain calls to Oracle functions TO_NUMBER, TO_CHAR, TO_DATE, DATE_ROUND, or DATE_TRUNC perform much slower on an Oracle Rdb database prepared for OCI Services for Oracle Rdb than on a native Oracle database or a similar query without the function call. This is more apparent on a query that generates hundreds of thousands of the function calls.

This problem has been fixed in release 7.2.0.1 by new optimizing logic. Queries that used to take 90 seconds to complete now take 15 seconds. If you are running on OpenVMS I64, the improvement is even more dramatic. This improvement is especially true for queries that resulted in a large number of calls to the functions from an OCI client such as SQL*Plus.

4.5.52 Random Error Message When SQLNET_DEBUG_FLAGS is HT

When SQLNET_DEBUG_FLAGS was set to HT, random error messages would print in the log during the connect, although the connect completed successfully. The error messages were of the form:

ERROR: ORA-26426: Message 26426 not found; product=NATCONN; facility=ORA.

This problem has been fixed in OCI Services for Oracle Rdb release 7.2.0.1.

4.5.53 Query Hangs With a Variable Comparison Using Oracle 10G SQL*Plus

When you used Oracle 10G SQL*Plus, queries using a variable rather than a literal in a comparison would hang. The following is an example of the type of query that would fail:

```

declare x char(3); begin x := 'abc';
select count(*) from table1@rdb1 where column1 = x;

```

This problem has been fixed in OCI Services for Oracle Rdb release 7.2.0.1.

4.5.54 Failure Upgrading Database After Upgrading to Release 7.1.6 Update03

If a database had been upgraded to OCI Services for Oracle Rdb release 7.1.6 Update03, attempting to upgrade it to release 7.1.6.1 would fail with the following error:

```
%RDB-E-NO-DUP, index field value already exists; duplicates not allowed for
ORA_OBJECTS_NAME.
```

You would have to issue a DROP command on the database and then prepare it in order to upgrade to release 7.1.6.1. This problem has been fixed in OCI Services for Oracle Rdb release 7.2.0.1.

4.5.55 Reference to Obsolete Procedure in Error Message in Log

In OCI Services for Oracle Rdb releases prior to 7.2.0.1, when a user who was not in the USERS table in a database tried to connect to the database, an incorrect error message was generated. The reference to the obsolete procedure ORA_SET_PASSWORD has now been replaced by the current procedure ORA_CREATE_USER.

4.5.56 Returning ROWID in an Insert Statement Caused Error ORA-00900

If users included RETURNING ROWID or RETURNING DBKEY in an INSERT statement, the statement would fail with the error:

ORA-00900: invalid SQL statement

and the executor log would show the error:

%SQL-F-SYNTAX-ERR, Syntax error

This happened because OCI Services for Oracle Rdb added the clause RETURNING DBKEY INTO :ORA_DBKEY to every INSERT statement. The resulting statements would have two RETURNING DBKEY clauses, and would cause SQL syntax errors. Starting with release 7.2.0.1, OCI Services for Oracle Rdb scans the statement for a RETURNING DBKEY or RETURNING ROWID before it adds the clause to the statement. There still may be some cases, especially if the RETURNING clause includes several elements, where OCI Services for Oracle Rdb will not recognize that a RETURNING DBKEY clause is already in the statement and will try to add it, causing an error. The executor log will show the generated SQL statement, so the user can correct it. It is recommended that the word DBKEY or ROWID be the first in the list of elements to be returned in a RETURNING clause of an INSERT statement. This will help OCI Services for Oracle Rdb recognize that it is already there.

4.5.57 Declare Transaction in SQL Init File Being Overridden

In releases of OCI Services for Oracle Rdb prior to 7.2.0.1, if a DECLARE TRANSACTION statement was executed in the SQL initialization file of a service, it would be overridden by a DECLARE TRANSACTION statement executed later by OCI Services for Oracle Rdb. Toward the end of the connection setup, OCI Services for Oracle Rdb would execute a DECLARE TRANSACTION statement to set the default transaction characteristics to be close to Oracle default transaction characteristics. This would supersede any DECLARE TRANSACTION statement in the SQL initialization file.

Starting with release 7.2.0.1, OCI Services for Oracle Rdb recognizes that a DECLARE TRANSACTION statement has been executed and will not execute another one.

4.5.58 Problem With Master/Detail Records

Bug 5531638

This problem could appear in several different ways. There were a few different errors or, sometimes, the detail records were displayed but were the wrong detail records for the master. Sometimes Forms would display the error:

Unable to perform query

and sometimes the following error would be seen in the executor log:

SQL-F-ILLDATLEN, An invalid SQLLEN(0) was found for a date

This problem has been fixed in OCI Services for Oracle Rdb release 7.2.0.1.

4.5.59 Prefetch in a Pro*C Program Using WHERE CURRENT OF CURSOR

Bug 5547621

In a prior release, a problem with prefetch (bug 4651271) was fixed to work with Oracle 9.2.0.4. There was a bug in Oracle 9.2.0.4 with prefetching (bug 3512385). When the Oracle bug was fixed, in release 9.2.0.5, the OCI Services for Oracle Rdb fix no longer worked. For this release, there is a fix that will work with Oracle 9.2.0.5 and later. If you are running Oracle 9.2.0.4 as a client, you must define the new logical SQLNET_9204_PREFETCH, which will cause OCI Services for Oracle Rdb to use the earlier fix.

This problem has been fixed in release 7.2.0.1.